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LEVEL AND STRUCTURE OF LINER FREIGHT CHARGES IN THE ESCAP REGION, 1978-1984

(Item 4 (b) of the provisional agenda)

Note by the secretariat

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INTRODUCTION

1. At its sixth session in December 1982, the Committee discussed the secretariat's study on the "Level and structure of liner freight charges in the ESCAP region, 1974-1981".[1/] It considered the study meaningful and that it provided a useful tool for analysis and better understanding of the shipping situation. It therefore urged the secretariat to continue further in-depth studies on freight charges, the currency adjustment factor and the bunker adjustment factor and other surcharges, including the formulas adopted by liner conferences in setting levels of surcharges.[2/]

2. The analysis contained in this note results from the secretariat's further study, as desired by the Committee. It is based mainly on data supplied by Governments of ESCAP members and associate members. Other sources were used to supplement and update the data and information in order to reflect the latest developments in 1983-1984, which are highlighted.

3. The Working Group of Experts on Currency Adjustment Factors and Bunker Adjustment Factor was convened by the secretariat in 1982 to analyse the rationale, implications and formulas adopted by liner conferences regarding these surcharges. The report of the Group was considered by the Joint Meeting of Chief Executives of National Shippers' Organizations and National Shipowners' Associations at the third session held in 1982. Upon the recommendation of the Chief Executives that the surcharges should be widely examined in training courses and seminars[3/] and at the desire of the Committee, the studies on the currency adjustment factor - which is a more complicated device than that for bunker - were enlarged in scope and made more comprehensive. The Regional Workshop on Implications of Currency Fluctuations in Shipping was held at Bangkok, from 15 to 25 March 1983. The proceedings of the Workshop were made available later.[4/]

/4.

1/ E/ESCAP/STC.6/5.

2/ Report of the Committee on Shipping, and Transport and Communications: Shipping, Ports and Inland Waterways Wing, on its sixth session (E/ESCAP/293), para. 30.

3/ See Substantive report of the Joint Meeting of the Chief Executives of Shippers' Organizations and Shipowners' Associations, p. 2, attached to the report of the third session of that body (E/ESCAP/STC.6/24).

4/ "Implications of currency fluctuations in shipping" (no date).

4. In analysing the data on the level and structure of liner freight charges in the Asian and Pacific region, the series of indexes of selected liner conferences/rate agreements operating from and within the region using 1978 (in lieu of 1974) as base year were computed and data were updated to the latest available month in 1984. In the interpretation of the series of indexes, it has to be borne in mind that year-to-year change in the quantum of freight rates or freight charges is merely indicative of a trend and should not be treated in itself as an absolute change in movement of freight rates and freight charges.

5. The demand for sea transport, as reflected in the growth of world sea-borne trade, has slowed since 1980. The ton-miles of ocean carriage of cargoes decreased by 3,854 billion ton-miles or 23 per cent in 1983 compared with 1978 while the world fleet expanded by 3 per cent to 643 million dead-weight tons between the same years. These data indicate that while the demand for shipping services decreased greatly, yet the supply of shipping tonnage increased.

6. The decline in cargo volumes and the increase in ship tonnage resulted in a decline and instability in freight levels of liner shipping (which carries a substantial portion of world trade). While there were some general increases in posted conference rates, the significance of these increases has been eroded as more commodities are exempted from the full rate increase, more rates are opened and other concessions granted in order to retain the trade. In those cases, the total freight charges showed a much lower increase than the basic freight rate.

7. In the trades of regional members and associate members of ESCAP the increase in total freight charges and in the basic freight rate similarly slowed down in 1982-1984. In general, in the developing countries the level which the total freight charges reached in 1984 was higher than the relative level of the basic freight rate except on some conference routes.

8. Currency and bunker surcharges have assumed greater importance in the conference freight structure in the Asian and Pacific region. In some cases they accounted for as much as 60 per cent of the total freight charges. While a conference may have kept the base rate at a standstill, increased utilization of the automatic surcharge mechanism may result in a higher total freight charge, enabling member lines to recover some costs. Such surcharges

/have

have become a matter of great concern to both shippers' bodies and conferences. However, many non-conference lines do not have either surcharge.

9. Other noteworthy developments in 1983-1984 which affect the level, structure, scope, movement and calculation of freight rates and surcharges are:

(a) The coming into force on 6 October 1983 of the United Nations Convention on a Code of Conduct for Liner Conferences which provides a regulatory framework for relationships among member lines within conferences and between conferences and shippers' bodies;

(b) The expansion of competitive non-conference liner shipping;

(c) The increased application of commodity box rate schemes, in lieu of conventional tariffs, in response to the greater containerization in liner routes.

10. The Committee is requested to consider and comment on the analysis and to provide further guidance to the secretariat on actions to be taken.

I. FREIGHT CHARGES AND FREIGHT RATES, 1978-1984

A. The changing scope of total freight charges

11. The growth of world sea-borne trade, which reflects the demand for sea transport, slowed in 1980 and continued to slow in the next three years (see table 1). The total ton-miles of ocean carriage of cargoes declined in 1980 and decreased at an average annual rate of 8 per cent between 1980 and 1983. The reduction in ton-miles for "other cargo" (the commodity class closest to cargoes carried by liner vessels) was about 2 per cent in 1983 as against a 4 per cent reduction in 1982. Over the whole period, 1979-1983, the average yearly decrease in ton-miles was 1 per cent, despite an increase in 1980. It is interesting to note that world sea-borne trade decreased by 3,854 billion ton-miles or 23 per cent in 1983 when compared with 1978, whilst the world fleet increased by 18.4 million dead-weight tons or 3 per cent from 624.6 million in 1978 to 643.0 million in 1983.[5/] These changes indicate that while demand for shipping services decreased greatly, yet the supply of shipping tonnage increased.

/Table 1.

5/ Fearnleys, Review 1983 (Oslo, January 1984).

Table 1. World sea-borne trade by types of cargo, 1974 and 1978-1983

(In billions of ton-miles)

	Crude oil	Oil products	Iron ore	Coal	Grain[a/]	Other cargo	Total trade
1974	9 661	960	1 578	558	695	2 935	16 387
1978	9 661	985	1 384	604	945	3 455	17 034
1979	9 614	1 045	1 599	786	1 026	3 605	17 675
1980	8 385	1 020	1 613	952	1 087	3 720	16 777
1981	7 371	1 000	1 508	1 120	1 131	3 710	15 840
1982	5 412	1 070	1 443	1 094	1 120	3 560	13 699
1983[b/]	5 200	1 050	1 400	960	1 080	3 490	13 180

Source: Fearnleys, Review 1983 (Oslo, January 1984).

Notes: a/ Including wheat, maize, barley, oats, rye, sorghum and soya beans.

b/ Preliminary.

12. This ship overtonnaging affected freight charges adversely. During the period 1978-1984 the total freight charges[6/] of selected liner conferences operating from within the Asian and Pacific region showed varying degrees of increases/decreases but the great majority of increases had slowed down and registered an average of around 16 percentage index points. Similar trends were also observed in the movements of the general freight rate indexes as illustrated in table 2. It may be noted that during the same period, the basic freight rate of various liner conferences indicated an average rise of 25 percentage index points (using the 1978 rate as a base of 100) and this reflected the higher rate of increases in the basic freight rate as compared with the total freight charges for the great majority of liner conferences under study. However, this observation may not be quite valid in conferences which incorporated positive bunker adjustment factor into the base rate.

/13.

6/ The term "total freight charges" as used herein means the aggregate made up of the freight rate (or base rate) and of relevant surcharges other than the port congestion surcharge. Three surcharges are included: the bunker adjustment factor or bunker surcharge, the currency adjustment factor or currency surcharge, and the Suez Canal surcharge (applicable only up to 1979). The individual commodity freight rates which are taken into account are those which are subjected, without exception or exemption, to the general rate increases of the liner conferences operating from and within the Asian and Pacific region.

13. The downturn in cargo volumes resulting from the worldwide economic recession, the entry of new and the expansion of some non-conference services and the introduction of additional slottage by existing and new carriers have subjected the trades, particularly those in container operations on the trans-Pacific routes, to strong rate pressures and instability. It was commonly known in the trade that both conference and non-conference carriers were constrained by the keen competition for less cargoes, to resort to rate-cutting and "under-the-counter" rebates. It has been estimated 7/ that in the East Asia/Europe trade in April 1983 20 Far Eastern Freight Conference (FEFC) member lines together had a reduced share (45 per cent) in the carriage of the cargoes whilst Yang Ming Line had 23 per cent, Evergreen Line 15 per cent and other non-FEFC lines the remaining 17 per cent. The expansion in non-conference services has resulted in restraint in liner conference pricing policy leading to a comparatively lower rate of increase of freight charges in the period 1983-1984 (see table 2).

14. Most of the liner conferences and non-conference lines or "outsiders" operating within or outside ESCAP member countries simplified their freight tariff structure and introduced the commodity box rates system. Two basic systems have been used for adjusting tariffs to take account of containerization. The freight-all-kinds system imposes a standard pricing structure, except on routes where the cargo mix is very homogeneous. Freight-all-kinds rates clearly favour the shipper of high-rated goods. The system is used particularly by outsiders trying to draw off the conference's high-revenue commodities. The commodity box rates system allows for a degree of differentiation between various types of cargo. Therefore, an element of the traditional "what the traffic will bear" formula is retained under a commodity box rate structure. This means that shippers of both high- and low-rated goods can take advantage of containerization. The commodity box rate is the rate applied per 20-foot container for FCL/LCL and LCL/FCL shipments by commodity class. For 40-foot units the rate will generally be twice that of 20-foot units. There was a tendency on the part of some conferences to increase terminal handling charges of containers which resulted in higher total freight charge even in the absence of a general rate increase.

/Tabel 2

7/ Shippers' Times, May/June 1983, vol. 3.

Table 2. Total freight charges, basic freight rates and bunker surcharges of liner conferences or rate agreements in the Asian and Pacific region, 1981-1984
(1978 = 100)

Country/conference/rate agreement/route	Total freight charges a/ (1)				Basic freight rate (2)				Bunker surcharge (3)				Effect of bunker surcharge b/ (4)			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	198	1981	1982	1983	1984
Developed ESCAP countries:																
Australia:																
Australia to Europe Shipping Conference	117	127	128	119	116	126	126	126	146	138	128	128 (January)	104	104	103	103
Australia-Eastern USA Shipping Conference (East Coast North America)	144	148	149	153	128	134	134	134	168	154	166	216 (July)	116	113	114	119
Australia Northbound Shipping Conference:																
Australia to Japan and Republic of Korea	93	97	100	100	112	117	124	124	306	320	278	273 (April)	107	108	106	106
Australia to East Asia (Hong Kong and the Philippines)	117	124	129	126	114	119	125	125	249	250	234	194 (July)	112	112	110	107
Australia to East Coast India and Bangladesh	133	147	144	145	119	119	119	119	233	300	212	212 (July)	115	119	113	113
Australia/West India and Sri Lanka Outward Shipping Conferences	136	132	128	128	118	118	118	118	362	300	234	234 (July)	122	119	115	115
Australia/Singapore/West Malaysia/Indonesia Outward Shipping Conference	133	137	144	144	119	127	134	144	196	145	135	124 (May)	114	110	110	109
Australia/Thailand Outward Shipping Conference	137	153	143	143	121	126	134	143	347	262	202	186 (May)	117	113	110	109
Japan:																
Japan/Europe Freight Conference	83	74	77	86	114	114	114	128	3	nc	nc	nc (July)	90	89	89	89
Australia and New Zealand Eastern Shipping Conference:																
East and South	118	106	113	116	122	129	136	136	302	271	255	255 (July)	115	112	111	111
West and North	123	109	117	119	124	130	138	138	300	258	245	249 (July)	119	115	113	114
Bay of Bengal/Japan/Bay of Bengal Conference (Chittagong)	109	97	106	106	113	113	120	120	291	274	258	258 (July)	118	117	115	115
Japan-India-Pakistan-Gulf/Japan Conference (Bombay)	113	109	115	114	110	124	124	124	305	273	273	273 (July)	120	117	117	117
Japan/Hong Kong and Japan/Straits Freight Agreements	121	110	118	117	120	125	129	129	299	284	264	256 (July)	119	118	116	115
Indonesia-Japan/Japan-Indonesia Freight Conference	127	114	124	127	127	135	142	142	328	272	286	262 (July)	119	115	116	114
Japan/Thailand Freight Conference	113	102	116	115	118	124	130	130	278	254	253	233 (July)	114	112	112	110
Japan/Philippines Freight Conference	114	102	111	104	111	116	121	121	283	246	256	229 (July)	119	116	116	113
Japan/Sabah Freight Conference	120	107	111	109	118	118	118	118	254	232	214	214 (July)	114	112	110	109
New Zealand:																
New Zealand European Shipping Association	98	117	119	122	129	138	138	138	0	14	17	24 (July)	93	94	94	94
Blueport Act: New Zealand/US Atlantic and Gulf	109	114	129	135	125	130	137	146	nc	nc	12	26 (July)	99	100	101	103
New Zealand/Pacific Coast North America	108	115	117	133	123	127	134	142	nd	nd	nd	nd (July)	100	100	101	102
New Zealand and UK Shipowners' Committee	102	124	131	132	129	138	138	138	nd	nd	nd	nd (July)	100	101	101	102
Developing ESCAP countries																
Bangladesh:																
Chittagong and Pussur River/UK and Eire Conference	124	112	116	111	120	120	120	120	255	261	249	249 (July)	115	116	115	115
Chittagong and Pussur River/Continental Conference	101	94	92	90	120	120	120	120	255	261	249	249 (July)	111	112	111	111
Bay of Bengal/Japan/Bay of Bengal Conference:																
(Bangladesh-Japan): long jute, gunnies and carpet backing	114	104	112	116	100	100	106	106	342	310	318	327 (July)	126	122	123	124
Bangladesh-Australia: jute, yarn and gunnies	...	149	166	132	113	128	128	128	...	327	327	327 (July)	...	127	127	127

/...

Table 2 (continued)

Country/conference/rate agreement/route	Total freight charges a/ (1)				Basic freight rate (2)				Bunker surcharge (3)				Effect of bunker surcharge b/ (4)			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984
India:																
India-Pakistan-Bangladesh/UK-Continental Conference:																
India/continent	106	94	91	90	120	120	120	120	255	261	249	249 (June)	111	112	111	111
India/UK	128	112	116	111	120	120	120	120	296	261	249	249 (July)	119	116	115	115
Japan/India-Pakistan-Gulf/Japan Conference	119	109	106	104	100	100	100	100	339	313	304	303 (August)	129	126	125	125
Bay of Bengal/Japan/Bay of Bengal Conference (India Eastbound)	114	106	109	107	100	100	100	100	335	310	301	309 (July)	125	122	121	122
India-Pakistan-Bangladesh/Middle East Conference	115	115	115	116	100	100	100	100	213	213	213	213 (July)	111	111	111	111
Calcutta, East Coast of India and Bangladesh/ USA Conference (Atlantic and Gulf)	nc	nc	nc	nc	117	117	129	156	261	327	488	828 (July)	nc	nc	nc	nc
Indonesia:																
Indonesia-Japan/Japan-Indonesia Freight Conference	127	114	124	127	127	135	142	142	322	272	286	262 (July)	119	115	116	114
Malaysia:																
Far Eastern Freight Conference (UK)	93	86	84	98	117	117	117	131	3	nc	nc	nc (April)	87	86	86	87
Straits/New Zealand Direct Conference	123	119	119	121	106	106	106	106	240	218	218	218 (June)	110	108	108	108
Straits/Calcutta/Bangladesh Conference	123	121	121	121	106	106	106	106	184	184	184	184 (May)	111	111	111	111
Straits/Bombay/Karachi/Gulf Conference	113	111	111	111	100	100	100	100	159	159	159	159 (May)	107	107	107	107
Straits/South Africa Shipping Conference	140	134	134	134	114	114	114	114	320	282	282	282 (May)	120	116	116	116
Pakistan:																
Karmahom Continental Conference	124	112	115	111	120	120	120	120	255	261	249	249 (July)	115	116	115	115
Japan/India-Pakistan-Gulf/Japan Conference (Karachi/Hong Kong and Japan, Eastbound)	127	117	112	113	108	108	108	108	368	340	340	319 (March)	131	128	128	126
India-Pakistan-Bangladesh/UK/Continent Conference:																
Pakistan/Continent	104	94	92	90	120	120	120	120	255	261	249	249 (July)	111	112	111	111
Pakistan/UK	124	112	116	111	120	120	120	120	255	261	249	249 (July)	115	116	115	115
India-Pakistan-Bangladesh/Middle East Conference	118	115	115	116	100	100	100	100	257	229	229	229 (July)	114	111	111	111
Philippines:																
Philippines/Europe Conference	85	81	74	80	117	117	117	131	3	nc	nc	nc (April)	87	85	85	86
Philippines-Asia Conference (Japan and Republic of Korea)	128	128	128	128	109	109	109	109	nc	nc	nc	nc (March)	119	119	119	119
Philippines/North America Conference	nc	nc	nc	nc	112	112	112	123	136	136	136	136 (March)	nc	nc	nc	nc
Republic of Korea:																
Far East/Gulf of Aden and Red Sea Ports Conference	91	84	76	85	117	117	117	131	34	3	nc	nc (January)	91	87	86	86
Australia and New Zealand/Eastern Shipping Conference:																
Republic of Korea - Australia	102	123	122	126	116	122	129	129	nc	nc	nc	nc (June)	68	68	72	77
Republic of Korea - New Zealand	126	119	116	119	118	124	131	131	nc	nc	nc	nc (June)	79	78	81	86
Far Eastern Freight Conference (Westbound)	92	85	77	86	117	117	117	131	34	3	nc	nc (January)	92	88	86	88
Far East/East Africa Freight Conference	100	134	143	146	100	100	100	100	nd	nd	nd	nd (March)	100	134	131	131
Far East/River Plate/Far East Freight Conference	115	115	115	115	135	135	135	135	155	155	155	155 (July)	138	108	108	108

/...

Table 2 (continued)

Country/conference/rate agreement/route	Total freight charges a/ (1)				Basic freight rate (2)				Bunker surcharge (3)				Effect of bunker surcharge b/ (4)			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984
Singapore:																
Straits/Australia Conference	139	161	158	160	126	137	147	147	189	189	184	184 (June)	106	106	105	105
Far Eastern Freight Conference	93	86	84	98	117	117	117	131	3	nc	nc	nc (April)	87	86	86	87
Far East/Gulf of Aden and Red Sea Ports Conference	93	86	84	98	117	117	117	131	3	nc	nc	nc (April)	87	86	86	87
Far East/River Plate/Far East Freight Conference	127	127	127	127	135	135	135	135	155	155	155	155 (June)	108	108	108	108
Brazil/Far East/Brazil Freight Conference	187	188	196	196	134	140	146	146	340	319	333	333 (May)	127	124	126	126
Singapore and West Malaysia/West Africa Freight Agreement (Angola/Cameroun Range and Nigeria/Senegal Range)	114	109	115	115	116	116	122	122	20	3	3	3 (May)	92	90	90	90
Straits/Somalia Freight Agreement	154	152	152	152	125	125	125	125	318	318	318	318 (May)	124	124	124	124
Straits/Rangoon Rate Agreement	136	133	133	133	120	120	120	120	184	184	184	184 (May)	111	111	111	111
Far East/East Africa Freight Conference	151	153	153	153	122	129	129	129	311	292	292	292 (May)	124	121	121	121
Sri Lanka:																
Ceylon/Straits/Hong Kong/Japan Agreement	135	124	125	128	110	110	110	110	336	336	336	336 (March)	132	132	132	132
Ceylon/New Zealand (Direct) Conference	151	144	142	140	110	110	110	110	nd	nd	nd	nd (June)	153	153	153	153
Thailand:																
Thailand/Europe Conference	79	71	68	81	108	108	108	121	7	nc	nc	nc (July)	88	86	86	87

Source: Computed from information supplied by member Governments.

Note: All indexes have been rounded to the nearest whole number. The description of names of Conference/Rate Agreement is based on Croner Directory.

a/ Total freight charges include basic freight rate, currency and bunker surcharges.

b/ Index of the net effect of bunker surcharge on the total freight charges, constructed separately.

nc - not computable from available data.

nd - index is not defined because variable has zero value in base year.

... not available.

Month in parentheses indicates the latest month for which information was received.

15. Most of the freight rate increases were general, across-the-board, increases but their significance has been limited. Their scope has dwindled as more commodities are exempted from the full rate increase, more rates are opened and other concessions are granted in order to retain the trade. Changes in conference line costs are spread over all commodities carried. Table 3 shows that certain selected liner conferences operating from and within the region have increased the scope of exceptions for general rate increases. The data may not be complete and exhaustive but they are sufficient to indicate in general that the scope of application of the general freight rate increases of conferences has been constantly changing.

16. The United Nations Convention on a Code of Conduct for Liner Conferences, briefly known as the Liner Code, came into force on 6 October 1983. As at January 1984, 59 countries accounting for some 29 per cent of world tonnage, had become Contracting Parties to the Code.[8/] The Code provides an internationally accepted regulatory framework for the operation of liner conferences and the attainment of a more significant participation in shipping by developing countries. It also provides guidelines intended to promote more harmonious relationship between conferences and shippers' councils.

17. The objectives of the Code are to ensure the rights of participation of national lines in trade so that they are entitled to carry a substantial share of their countries' foreign trade, to balance the interests of shippers and shipowners, and to facilitate the orderly expansion of liner trade. Towards these ends, the Liner Code regulates, inter alia, the relationship between member lines of conferences, in particular the rights of admission of national shipping lines to conferences serving their countries' foreign trade, and sets forth guidelines for the establishment of pools or other types of trade-sharing arrangements in conferences as well as other internal conference activities, such as self-policing. The Code also regulates the relationship between shippers and liner conferences by establishing principles for the use of loyalty arrangements as well as the provision that conferences are to hold consultations with shippers or other representative organizations such as on changes in freight rates, imposition of surcharges and other matters. The Code has taken effect only recently and implementing measures by most of the Contracting Parties still remain to be adopted. It has not yet had any appreciable effect on liner freight rates.

/Table 3

8/ United Nations Conference on Trade and Development, Review of Maritime Transport, 1983 (TD/B/C.4/266).

Table 3 The scope of general rate increase: commodities excepted from general rate increases of liner conferences/rate agreements in the Asian and Pacific region, 1981-1984

Country/conference/rate agreement/route	Total freight charge index a/ (1978 = 100)				Commodities excepted from general increases in the basic freight rate
	1981	1982	1983	1984	
Developed ESCAP countries:					
Australia:					
Australia to Europe Shipping Conference	117	127	128	119 (January)	1979-1981 Wool, closeweight (synonymous with MAMSAAL and refers to six semi-processed metal), apples, pears, canned fruit, dried fruit, meat 1982 Closeweight, apples, pears, rice, wine, hides 1983-1984 Nil
Australia-Eastern USA Shipping Conference (East Coast North America)	144	148	149	153 (July)	1979 Meat, wool, dairy, closeweight, iron and steel 1980 Meat and wool 1981 Meat, wool, canned fruit and citrus 1982 Meat and wool 1983-1984 Nil
Australia Northbound Shipping Conference:					
Australia to Japan and Republic of Korea	93	97	100	100 (April)	1978 Dairy products, MAMSAAL, canned fruit, meat and bonemeal 1979-1980 Wool, meat, malt and canned fruit 1981 Wool and malt 1982 Wool, meat, bonemeal, apples and pears 1983 Closeweight, malt, onions and wool 1984 Nil
Australia to East Asia (Hong Kong and the Philippines)	117	124	129	126 (July)	1978 Wool, meat and bonemeal 1979 Nil 1980 Wool and malt 1981-1982 Wool, apples and pears 1983-1984 Nil
Australia to East Coast India and Bangladesh	133	147	144	145 (July)	1978-1979 Wool and closeweight 1980-1984 Nil
Australia/West India and Sri Lanka Outward Shipping Conferences	136	132	128	128 (July)	1978-1979 Closeweight, meat and bonemeal 1981 Wool 1982-1984 Nil
Australia/Singapore/West Malaysia/Indonesia Outward Shipping Conference	133	137	144	144 (May)	1978 Closeweight, malt, citrus, apples and pears 1980 Malt, wool, closeweight 1981 Apples, pears, citrus, wool, closeweight 1982 Meat, wool, malt, closeweight, apples, pears, citrus and vegetables
Australia/Thailand Outward Shipping Conference	137	153	143	143 (May)	1978 Closeweight 1979-1982 Closeweight and malt 1983-1984 Nil
Japan:					
Japan/Europe Freight Conference	83	74	77	86 (July)	Special rates: 1978-1981 Textiles, electrical goods, motor cycles, automobile parts, sewing machines, typewriters, tires, tubes, cranes, bulldozers, outboard motor, canned goods Open rates: 1978-1981 Iron and steel
Australia and New Zealand Eastern Shipping Conference: East and South	118	106	113	116 (July)	Special rates: 1978-1981 Electrical goods, motor cycles, vehicle, iron and steel, paper, porcelain, tires, textiles, tiles, canned goods, resin Open rates: 1978-1981 Iron and steel, cement, fertilizer, limestone, bulk liquid chemical
Bay of Bengal/Japan/Bay of Bengal Conference (Chittagong)	109	97	106	106 (July)	Special rates: 1978-1981 Second-hand clothing, textile rugs Open rates: 1978-1981 Cement, fertilizer, cork, pig iron

Table 3 (continued)

Country/conference/rate agreement/route	Total freight charge index a/ (1978 = 100)				Commodities excepted from general increases in the basic freight rate
	1981	1982	1983	1984	
Japan: (continued)					
Japan-India-Pakistan-Gulf/Japan Conference (Bombay)	113	109	115	114 (July)	Special rates: 1978-1981 Home appliances, machinery, textiles, iron and steel Open rates: 1978-1981 Cement, fertilizer, rice, cork
Japan/Hong Kong and Japan/Straits Freight Agreements	121	110	118	117 (July)	Special rates: 1978-1980 Iron and steel, motor vehicles, textiles, tyres, tubes Open rates: 1978-1981 Cement, fertilizer, cattle and livestock
Indonesia-Japan/Japan-Indonesia Freight Conference	127	114	124	127 (July)	Special rates: 1978-1981 Completely knocked down vehicles, iron and steel, motor cycles, electrical cable, window glass, resin, soda ash, rubber, textiles Open rates: 1978-1981 Cement, fertilizer
Japan/Thailand Freight Conference	113	102	116	115 (July)	Special rates: 1978-1981 Agricultural implements, chemicals, bicycles, machinery, electrical home appliances, motor cycles, stainless steel, textiles, tires, tubes Open rates: 1978-1981 Fertilizer, cement, coal, cork
Japan/Philippines Freight Conference	114	102	111	104 (July)	Special rates: 1978-1981 Iron and steel, chemical goods, silk, cotton, textiles, wool, yarn, glass sheet, electrical goods, motor cycles Open rates: 1978-1981 Cement, fertilizer in bags, soda ash
New Zealand:					
New Zealand European Shipping Association	98	117	119	122 (July)	1978-1983 Frozen meat, dairy product, wool Open rates: 1978-1981 Tallow bulk, frozen fish 1982-1984 Nil
Blueport Act: New Zealand/US Atlantic and Gulf	109	114	129	135 (July)	1980-1984 Meat, dairy product, wool
: New Zealand/Pacific Coast North America	108	115	117	133 (July)	1980-1984 Wool, meat, dairy product
New Zealand and UK Shipowners' Committee	102	124	131	132 (July)	1978-1983 Frozen meat, dairy product, wool
Developing ESCAP countries:					
Bangladesh:					
Bay of Bengal/Japan/Bay of Bengal Conference (Bangladesh-Japan)	114	104	112	116 (July)	Special rates: 1983 Raw jute
India:					
Bay of Bengal/Japan/Bay of Bengal Conference (India Eastbound)	114	106	109	107 (July)	1978-1984 Nil
India-Pakistan-Bangladesh/Middle East Conference	115	115	115	116 (July)	1978 Jute and jute product
Calcutta, East Coast of India and Bangladesh/ USA Conference (Atlantic and Gulf)	nc	nc	nc	nc (July)	1980 Cast iron castings, pipes and fittings, mica block and film, bars, belts 1982-1983 Jute products 1984 Jute carpet daily, cast iron
Malaysia:					
Straits/Bombay/Karachi/Gulf Conference	113	111	111	111 (May)	Open rates: 1978-1979 Railway sleepers, plywood, charcoal, timber 1980 Glassware, fertilizer, railway crossing ties, animal foodstuff, marble, rattan 1981 Flour, wheat, lubricating oil, wood waste
Straits/South Africa Shipping Conference	140	134	134	134 (May)	Open rates: 1978-1981 Timber 1980 Timber, paraffin wax, bulk oils
Pakistan:					
Karmahom Continental Conference	124	112	115	111 (July)	Open rates: 1978-1981 Oil cakes and meal
Japan/India-Pakistan-Gulf/Japan Conference (Karachi/Hong Kong and Japan, Eastbound)	127	117	112	113 (March)	1978-1981 Cotton and allied items Open rates: 1978-1981 Ores and scrap
India-Pakistan-Bangladesh/UK/Continent Conference: Pakistan/UK	124	112	116	111 (July)	Open rates: 1978-1981 Oil cake and meal in bulk

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Table 3 (continued)

Country/conference/rate agreement/route	Total freight charge index a/ (1978 = 100)				Commodities excepted from general increases in the basic freight rate
	1981	1982	1983	1984	
Philippines:					
Philippines/Europe Conference	85	81	74	80 (April)	1978-1981 Plywood timber, logs, copra products, ores
					Open rates: 1978-1984 Copra cakes, copra pellets, rice, coconut oil, logs
Philippines/Asia Conference (Japan and Republic of Korea)	128	128	128	128 (March)	Open rates: 1978-1984 Coconut oil in bulk, sugar, rice, copra, explosives, fertilizer
Republic of Korea:					
Far East/East Africa Freight Conference	100	134	143	146 (March)	Exception: 1978-1984 Iron and steel, vehicles; tires, tubes, canned mackerel, synthetic yarn, glass fibre board/sheet, bleaching powder, filament
					Open rates: 1978-1984 Cement in bags
Singapore:					
Straits/Australia Conference	139	161	158	160 (June)	Exception: 1979 All liquid cargoes, sawn timber, other temporarily rated items
					1980-1981 Plywood, blackboards, sawn timber, rubber
					Open rates: 1978-1981 Iron ore
					1980-1981 Sawn timber
Far Eastern Freight Conference	93	86	84	98 (April)	Exception: 1979, 1981, 1984 Sawn timber, plywood, palm oil in bulk, railway sleepers
					Open rates: 1979-1980 Copra and copra cake in bags or bulk, copra chips and meal, latex in bulk, coconut oil in bulk, palm oil in bulk, palm kernel oil in bulk, iron ores, rubber, timber, iron and steel, tin concentrates packed in drums or in bulk, tin ingots, rice
					1981, 1984 Sawn timber
Brazil/Far East/Brazil Freight Conference	187	188	196	196 (May)	1978-1980 Ad valorem rates
					1981 Ad valorem rates, heavy lift charges for lifts weighing up to 3 metric ton per piece
Straits/Somalia Freight Agreement	154	152	152	152 (May)	1980 Palm oil, palm olein and timber
Thailand:					
Thailand/Europe Conference	79	71	68	81 (July)	Special rates: 1978 Yarn, jute, twine, plastic bags, gunny, stainless steel manufactured articles
					1979 Leather and leather goods, mixed silk and cotton, woodware, unnumerated cargo, cuttery, brassware, carpet, chinaware, frozen chicken, rattan furniture, cassette tapes, gunny, plastic manufacture, cassette tape
					1980 Gloves, hide, bag, gunny, furniture, books, cassette tapes, motor car parts and accessories
					1981 Tapioca pearl, tapioca starch, fibre coconut, explosive, fibre coils
					1982 Plates, lead batterry, sports goods excluding footwear, chrome, buffalo bides
					Open rates: 1978 Barytes, fluorite
					1979-1984 Fibre jute, jute twine, manioc, tapioca waste, barytes, fluorite, ore, lead

Source: Compiled from information supplied by member Governments.

Note: a/ The compound of general rate increase and variations in bunker surcharge, currency surcharge and Suez Canal surcharge (up to 1979 only).

Month in parentheses indicates the latest month for which information was received.

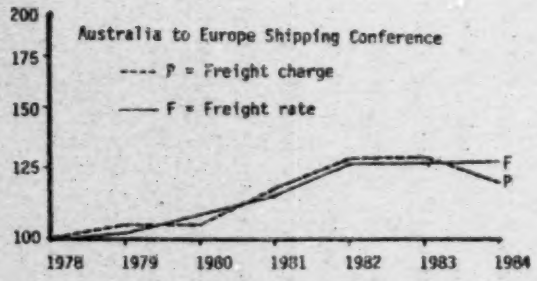
B. The changing structure of freight charges

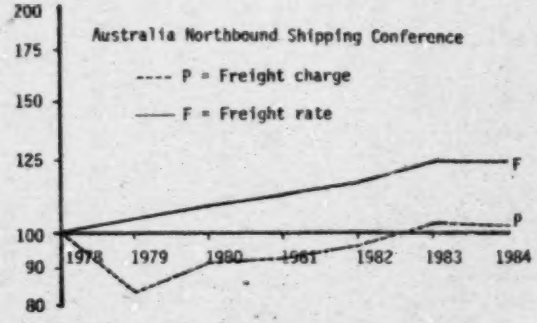
18. Since the 1970s, various surcharges have constituted a steadily increasing proportion of the total freight charges. The differing movements continued in the period 1978-1984 and these are reflected in table 2. An index was constructed covering selected conferences and rate agreements operating in selected countries and areas for the period 1978-1984 with 1978 as the base year. In some cases, the level which the total freight charges had reached by 1984 was higher than that of the basic freight rate. This development is clearly illustrated in the figure. At mid-1984 it was not uncommon for surcharges of some sectors of liner routes to amount to 60 per cent of total freight charges (see table 5). This high proportion of freight surcharges will probably continue. However, owing to intensity of competition and overtonnaging in certain liner routes like Japan/Europe Freight Conference, India-Pakistan-Bangladesh/UK-Continent Conference, Philippines/Europe Conference and Thailand/Europe Conference, total freight charges registered decreases in 1984 of between 10 and 20 per cent compared with those of 1978 (see table 2).

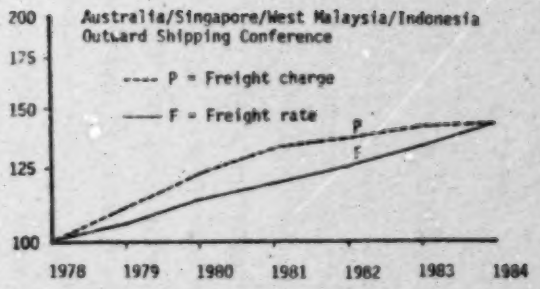
19. The freight charges have now become volatile. In many of the cases illustrated in the figure the freight charge curve is swinging very close to the basic freight rate curve. In some cases, there seems to be no strict correlation between the movements of the basic freight rate and freight charge curves. It would seem that under current circumstances the level of the basic freight rate is no longer a reliable indicator of the ocean transport cost for the commodity on the route. While there may be no general rate increase and the basic freight rate is held at a standstill, increases in the surcharges, both currency and bunker adjustment factors, result in an actual increase in the total freight charges. An increase in the basic freight rate may be offset by reductions in the surcharges (i.e. when they become negative or their combined net result is negative), resulting in lower total freight charges. A significant development in 1983-1984 was the increased importance of surcharges as a factor of total ocean transport cost, especially of the landed prices of commodity exports and imports. The increased utilization of the automatic mechanism of surcharges enables ship operators to recover costs faster than through protracted general rate increase consultations. At the same time it may tend to dampen the competitiveness and market demand for the commodity exports of the country concerned.

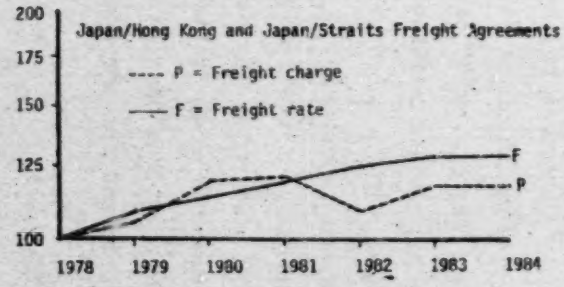
/Figure

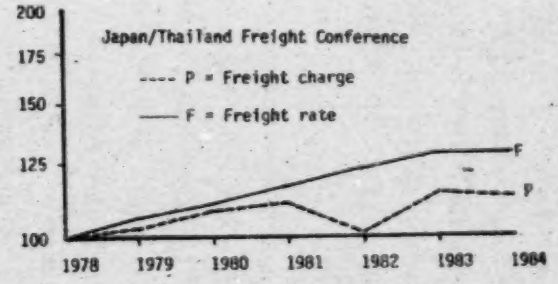
The total freight charges and basic freight rate of selected liner conferences/rate agreements in the Asian and Pacific region, 1978-1984 (index numbers, 1978=100, semi-log scales)

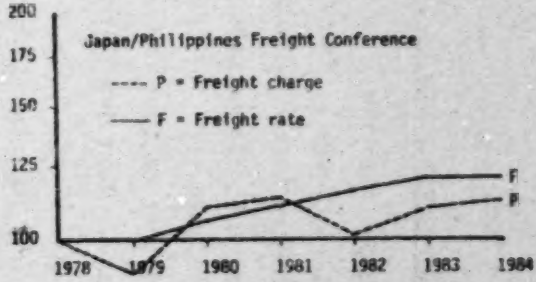


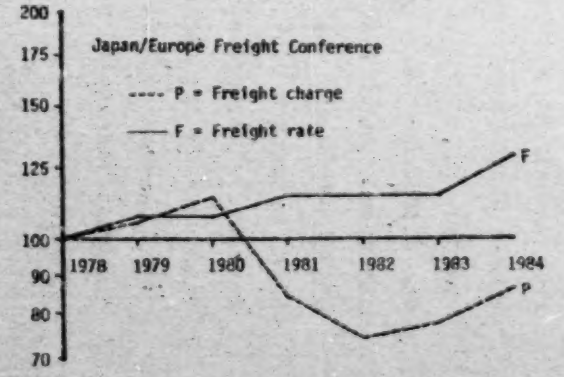


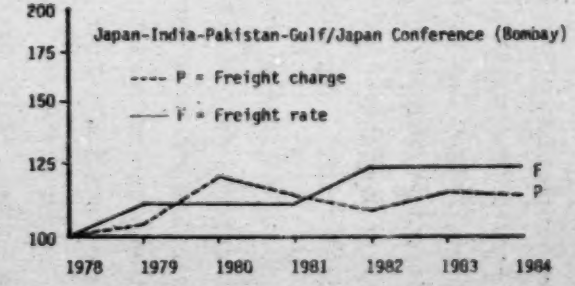


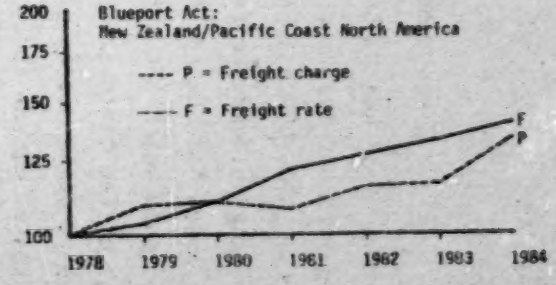


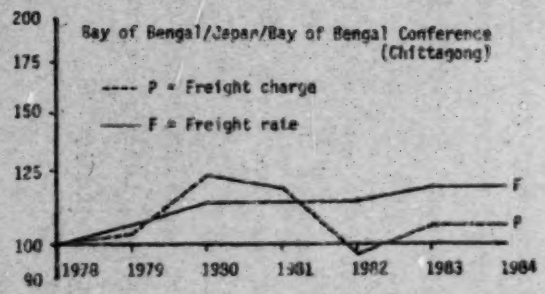


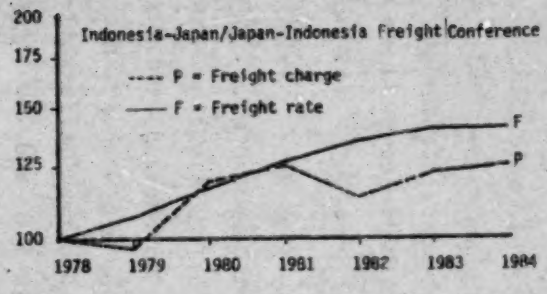


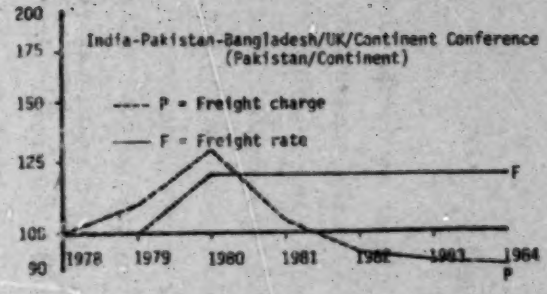


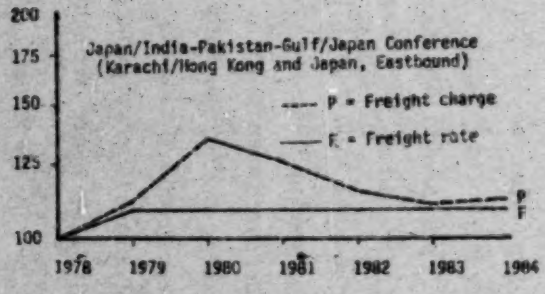


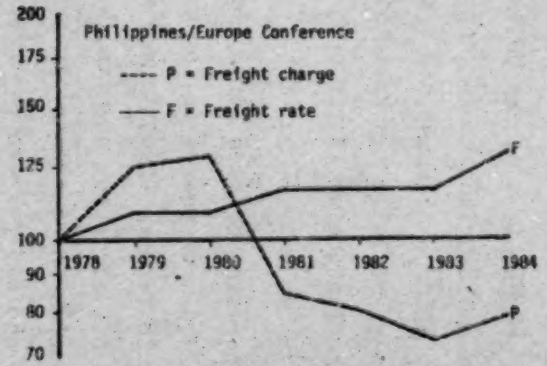


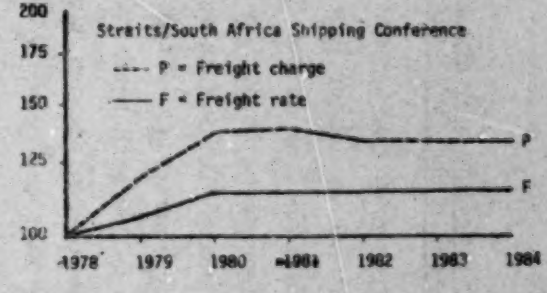


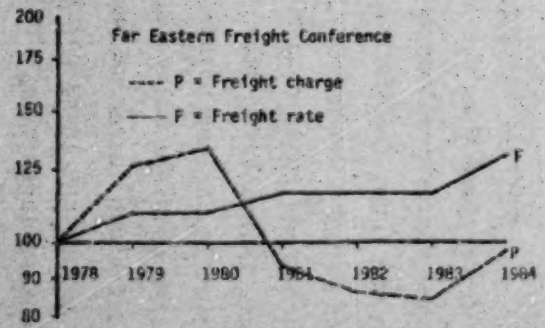


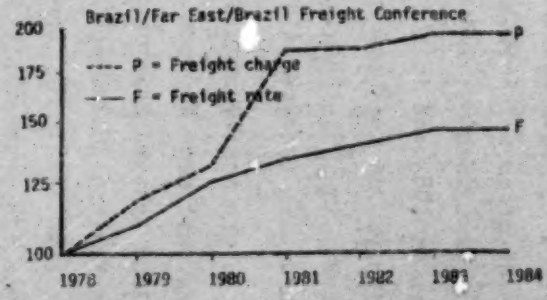


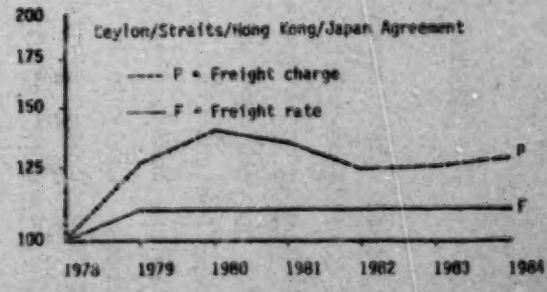












Note: ---- P = Total freight charges
—— F = Basic freight rate

C. Movement of total freight charges and basic freight rates in the ESCAP region

20. General rate increases effected by the selected conferences during the period 1980-1984 were less frequent and at longer intervals in the trades between ESCAP developing countries and Europe and the United States of America than in the trades between developed and developing countries within the region. The Far Eastern Freight Conference together with its associated conferences - the biggest in the world, covering many countries - effected a 12 per cent general rate increase early in 1984 after a 36-month base rate standstill. The India, Pakistan, Bangladesh, Sri Lanka/Europe conferences did not effect a general rate increase at all in 1981-1984, the last one being a 20 per cent increase in 1980 after a 17-month standstill, except in Sri Lanka where the increase had been 15 per cent after a 16-month standstill. On the United States route, the Calcutta, East Coast of India and Bangladesh/USA Conference had 5 per cent increases in 1983 and in 1984 after a 41-month and a three-month standstill respectively. In the West Coast of India and Pakistan/USA Conference, there was no increase in 1981-1984, the last being 17 per cent in 1980 after a 20-month rate standstill (see table 4).

21. In the conferences operating between ESCAP countries, the general rate increases were more frequent - almost yearly in the case of the Australia and New Zealand Eastern Shipping Conference (Southbound) and (Northbound) and Japan/Thailand Freight Conference, but of lesser quantum. In the conference trade between Japan and India, there was no increase in 1979-1984 from India while from Japan there were only 5 and 4.5 per cent increases in 1983 and 1984 respectively.

22. In general, the total freight charges of the conferences increased at a much slower pace than the basic freight rate during the period 1981-1984 except for some conferences operating in Bangladesh, India, Pakistan and Sri Lanka in which the total freight charges increased at a higher rate. In the Japan/Europe Freight Conference, for instance, whilst the freight rate went up by 14 percentage index points for the period 1981-1984, the index of total freight charges increased by only 3 percentage index points. Similar trends can also be noted in the conferences operating to Europe from Bangladesh, India and Pakistan and from Malaysia, Singapore and Thailand. In the Philippines, the total freight charge of the Philippines/Europe Conference registered a decrease of 5 percentage index points whilst the basic freight rate increased by 14 percentage index points from 1981 to 1984.

/Table 4

Table 4. General rate increases of selected liner conferences and rate agreements in the Asian and Pacific region, 1978-1984

Conference/rate agreement/route	Year	General rate increase (percentage)	Interval since last increase (months)
Asian and the Pacific-Europe:			
Developing ESCAP countries			
Far Eastern Freight	1978	-	-
Conference (Singapore,	1979	8	21
Malaysia, Philippines,	1980	-	-
Hong Kong and Republic	1981	8	21
of Korea) (similarly:	1982	-	-
Thailand-Europe)	1983	-	-
	1984	12	36
Ceylon/UK and Eire	1978	-	-
Conference	1979	15	23
	1980	15	16
	1981	-	-
	1982	-	-
	1983	-	-
	1984	-	-
India-Pakistan-	1978	12.5	21
Bangladesh/UK-	1979	-	-
Continent Conference	1980	20	17
	1981	-	-
	1982	-	-
	1983	-	-
	1984	-	-
Developed ESCAP countries:			
Australia to Europe	1978	4.5	12
Shipping Conference	1979	-	-
	1980	6	12
	1981	6	12
	1982	10	12
	1983	-	-
	1984	-	-
Japan/Europe Freight	1978	-	-
Conference	1979	8	21
	1980	-	-
	1981	8	21
	1982	-	-
	1983	-	-
	1984	12	36
Asia and the Pacific-United States:			
Developing ESCAP countries			
6. West Coast of India and	1978	15	37
Pakistan/USA Conference	1979	-	-
	1980	17	20
	1981	-	-
	1982	-	-
	1983	-	-
	1984	-	-
Thailand/US Atlantic	1978	15	12
and Gulf Conference	1979	-	-
	1980	-	-
	1981	-	-
	1982	-	-
	1983	-	-
	1984	-	-
Calcutta, East Coast of	1978	7.5	18
India and Bangladesh/	1979	-	-
USA Conference	1980	17	19
	1981	-	-
	1982	-	-
	1983	5	41
	1984	5	3
Developed ESCAP countries:			
Australia/Eastern USA	1978	4.5	12
Shipping Conference	1979	8	12
(East Coast North	1980	10.5	12
America)	1981	7.5	12
	1982	4.75	12
	1983	-	-
	1984	-	-
Japan/Korea-Atlantic	1978	7	12
and Gulf Freight	1979	4	12
Conference	1980	-	-
	1981	-	-
	1982	-	-
	1983	-	-
	1984	12 a/	60
Within Asia and the Pacific:			
Japan:			
Bay of Bengal/Japan/	1978	-	-
Bay of Bengal	1979	6.8	15
Conference	1980	14.6	16
(from Japan)	1981	-	-
	1982	-	-
	1983	5	36
	1984	4.5	12
Bay of Bengal/Japan/	1978	18	19
Bay of Bengal	1979	-	-
Conference	1980	-	-
(from India)	1981	-	-
	1982	-	-
	1983	-	-
	1984	-	-
Thailand/Japan	1978	-	-
Conference	1979	-	-
	1980	-	-
	1981	10	53
	1982	-	-
	1983	-	-
	1984	-	-
Japan/Thailand Freight	1978	10	12
Conference	1979	6.3	16
	1980	5.1	13
	1981	5.5	13
	1982	5.1	13
	1983	4.77	12
	1984	-	-
Australia Northbound	1978	9.5	12
Shipping Conference	1979	4.5	12
(Australia/Japan and	1980	3.5	12
Republic of Korea)	1981	4.0	12
	1982	3.75	12
	1983	6.25	12
	1984	-	-
Australia and New	1978	-	-
Zealand/Eastern	1979	7.5	15
Shipping Conference	1980	7.5	12
(Japan/Australia)	1981	6.0	12
	1982	4.95	13
	1983	5.75	13
	1984	4.0	19
Australia:			
Australia/West India	1978	9	22.5
and Sri Lanka Outward	1979	8	16.5
Shipping Conference	1980	-	-
	1981	9.5	10.5
	1982	-	-
	1983	-	-
	1984	-	-
Straits/Australia	1978	-	-
Conference	1979	5	26
	1980	8	15
	1981	11	9
	1982	9	12
	1983	7	17
	1984	-	-
Developing ESCAP countries:			
Thailand/Bay of Bengal	1978	8.5	12
Rate Agreement	1979	8.46	14
	1980	20	16
	1981	-	-
	1982	-	-
	1983	5	37
	1984	5	6

Source: Compiled from information supplied by member Governments.

Note: - nil.
a/ Unit in $US.

II. THE FREIGHT SURCHARGES

23. The principal freight surcharges levied by liner conferences are the currency surcharge, which is also called the currency adjustment factor in some conferences, and the bunker surcharge, also called the bunker adjustment factor. Many non-conference lines do not levy currency or bunker surcharges.

A. The currency surcharge or currency adjustment factor

24. A common problem in international trade arises when the production cost of an export commodity is incurred in one currency and it is sold at prices expressed in a different currency or currencies. In periods of unstable currency exchange rates it may happen that the earnings in foreign exchange obtained for export products when converted to the domestic currency will not cover their production costs. In reverse, an "exchange rate profit" may be realized if the currency in which the agreed prices were expressed becomes stronger than the currency in which the costs were incurred. It is a commercial practice for the exporter to try to transfer the burden of currency exchange losses to the buyer and vice versa. The outcome is largely dependent on the relative strength of buyer and seller.

25. Such a currency exchange problem in international trade also prevails in international shipping but in a more complicated manner. The costs of providing international shipping services are usually incurred in a number of countries with different currencies which are often different from the tariff currency or currency in which the freights are paid. The problem is compounded in liner shipping, especially when these services are provided within the framework of liner conferences. In such cases, currency fluctuations affect the relationship not only between line and shipper (seller and buyer) but also between the various member lines (sellers) of the liner conferences. These members are usually domiciled in a number of countries and therefore the cost structure of one member (in terms of currency) often differs from the cost structure of other members domiciled in other countries.

26. The currency adjustment factor was introduced by the conferences both as a means of transferring currency risks from the line to the shipper and as a means of distributing income more equitably among the member lines of the conference. During recent years, it has become an important element in total freight charges. It is a surcharge imposed on top of the basic freight rate and in some cases it may account for nearly 40 per cent of the total freight charges (see table 5).

/Table 5

Table 5. Surcharges (bunker adjustment factor and currency adjustment factor) as a percentage of liner conference freight charges, 1981-1984

Country/conference/ rate agreement/route	Period (as at)	Surcharges as percentage of freight charges	Bunker adjustment factor as percentage of freight charges	Currency adjustment factor as percentage of freight charges
Developed ESCAP countries:				
Australia:				
Australia to Europe Shipping Conference	End 1981	12.5	12.5	nc
	End 1982	11.0	11.0	nc
	End 1983	10.1	10.1	(8.8)
	1 January 1984	4.5	10.8	nc
Australia-Eastern USA Shipping Conference	End 1981	10.1	10.1	(2.0)
	End 1982	9.0	9.0	(12.8)
	End 1983	9.7	9.7	(1.8)
	27 July 1984	18.5	12.2	6.3
Australia Northbound Shipping Conference (Japan and Republic of Korea)	End 1981	16.0	16.0	(3.2)
	End 1982	16.1	16.1	(0.7)
	End 1983	13.5	13.5	(5.5)
	1 April 1984	13.3	13.3	(5.7)
Australia/Singapore/ West Malaysia/Indonesia Outward Shipping Conference	End 1981	10.6	10.6	(nc)
	End 1982	7.6	7.6	(5.0)
	End 1983	6.7	6.7	(11.7)
	1 May 1984	-	(6.7)	(nc)
Japan:				
Japan/Europe Freight Conference	End 1981	39.9	0.7	39.2
	End 1982	21.7	nc	24.1
	End 1983	28.9	nc	31.2
	4 July 1984	27.4	nc	27.7
Japan-India-Pakistan-Gulf/Japan Conference (Bombay)	End 1981	65.1	41.2	23.9
	End 1982	45.2	38.4	6.8
	End 1983	51.7	36.2	15.5
	26 May 1984	50.6	36.6	14.0
Japan/Hong Kong and Japan/Straits Freight Agreement	End 1981	68.0	39.4	28.6
	End 1982	52.8	41.4	11.4
	End 1983	56.4	36.0	20.4
	1 July 1984	56.3	34.8	21.5
Indonesia-Japan/Japan-Indonesia Freight Conference	End 1981	56.7	35.1	21.6
	End 1982	38.9	32.9	6.0
	End 1983	42.7	31.8	10.9
	4 July 1984	45.3	28.5	16.8
Japan/Thailand Freight Conference	End 1981	57.1	31.0	26.1
	End 1982	39.9	31.4	8.5
	End 1983	49.5	27.6	21.9
	4 July 1984	48.3	25.6	22.7

Table 5 (continued)

Country/conference/ rate agreement/route	Period (as at)	Surcharges as percentage of freight charges	Bunker adjustment factor as percentage of freight charges	Currency adjustment factor as percentate of freight charges
Japan/Philippines Freight Conference	End 1981	60.2	40.2	20.0
	End 1982	43.3	39.3	4.0
	End 1983	48,8	37.4	11,4
	4 July 1984	41.0	35.8	5.2
New Zealand:				
New Zealand European Shipping Association	End 1981	nc	nc	nc
	End 1982	nc	0.9	nc
	End 1983	nc	1.2	nc
	1 July 1984	nc	1.6	nc
Developing ESCAP countries:				
Bangladesh:				
Chittagong and Pussur River/UK and Eire Conference (UK)	End 1981	9.2	21.3	nc
	End 1982	nc	24.1	nc
	End 1983	2.1	22.3	nc
	16 July 1984	nc	23.2	nc
Bangladesh-Australia: jute, yarn, gunnies	End 1981	...	...	...
	End 1982	54.2	38.3	15.9
	End 1983	62.6	34.5	28.1
	1 July 1984	43.2	43.2	-
India:				
India-Pakistan-Bangladesh/ UK-Continent Conference (Continent)	End 1981	28.8	24.9	3.9
	End 1982	14.1	28.8	nc
	End 1983	10.5	28.2	nc
	1 June 1984	8.7	28.6	nc
Bay of Bengal/Japan/ Bay of Bengal Conference (India Eastbound)	End 1981	54.9	44.0	10.9
	End 1982	47.9	43.7	4.2
	End 1983	49.9	41.6	8.3
	21 July 1984	48.4	43.3	5.1
Malaysia:				
Straits/New Zealand Direct Conference	End 1981	48.0	18.6	29.4
	End 1982	45.1	17.4	27.7
	End 1983	45.1	17.4	27.7
	June 1984	46.9	17.1	29.8
Straits/Bombay/Karachi/ Gulf Conference	End 1981	53.9	24.0	29.9
	End 1982	52.2	24.4	27.8
	End 1983	52.2	24.4	27.8
	May 1984	52.2	24.4	27.8

Table 5 (continued)

Country/conference/ rate agreement/route	Period (as at)	Surcharges as percentage of freight charges	Bunker adjustment factor as percentage of freight charges	Currency adjustment factor as percentage of freight charges
Pakistan:				
Japan/India-Pakistan-Gulf/Japan Conference	End 1981	58.3	48.5	9.8
	End 1982	50.7	48.9	1.8
	End 1983	47.0	50.8	nc
	16 March 1984	47.8	47.3	0.5
India-Pakistan-Bangladesh/UK Continent Conference (Pakistan/ Continent)	End 1981	26.0	25.4	0.6
	End 1982	14.0	28.7	nc
	End 1983	10.5	28.1	nc
	1 June 1984	8.6	28.5	nc
Philippines:				
Philippines-Asia Conference (Japan and Republic of Korea)	End 1981	35.8	17.9	17.9
	End 1982	35.8	17.9	17.9
	End 1983	35.8	17.9	17.9
	15 March 1984	35.8	17.9	17.9
Republic of Korea:				
Far East/East Africa Freight Conference	End 1981	-	-	-
	End 1982	25.1	25.1	-
	End 1983	30.2	21.8	8.4
	1 June 1984	31.6	21.4	10.2
Singapore:				
Far East/River Plate/ Far East Freight Conference	End 1981	21.5	21.5	-
	End 1982	21.5	21.5	-
	End 1983	21.5	21.5	-
	1 June 1984	21.5	21.5	-
Far Eastern Freight Conference	End 1981	16.9	0.6	16.3
	End 1982	6.0	nc	8.2
	End 1983	3.4	nc	5.6
	1 April 1984	8.4	nc	8.7
Straits/Australia Conference	End 1981	34.4	10.9	23.5
	End 1982	39.7	9.4	30.3
	End 1983	32.3	9.3	23.0
	1 June 1984	33.1	9.2	23.9
Sri Lanka:				
Ceylon/Straits/ Hong Kong/Japan Agreement	End 1981	50.5	44.8	5.7
	End 1982	43.4	48.7	nc
	End 1983	44.0	48.4	nc
	26 March 1984	46.0	47.3	nc

Source: Computed from data supplied by member Governments.

Notes: - nil or negligible.

( ) Adjustment factor has already been incorporated in basic freight rate.

... not available.

nc index not computable from available data.

27. The foreign trade of the developing ESCAP member countries is, to a considerable degree, carried by conference lines. The currency adjustment factor is, therefore, an important element in the transport costs (and hence landed costs/prices) of that trade. The currency adjustment factor as a principle, the method of its calculation and the data on which it is calculated have thereby become important items in the consultations between conferences and shippers' bodies as well as in the arrangements among member lines of a conference.

28. Experienced shippers are used to changes in actual freight costs arising from fluctuations of the exchange rate between their national currency and the tariff currency, usually the United States dollar. To illustrate these changes, table 6 shows how the Indian rupee value of $US 1 of freight rate has changed for shipments with the Bay of Bengal/Japan/Bay of Bengal Conference (India Eastbound). Between the end of 1978 and July 1984 this Conference reduced the currency ad adjustment factor from 27.0 to 5.5 per cent. Between these two periods shippers therefore paid $US 0.17[9/] less per dollar of freight rate, but in view of the depreciation of the rupee vis-à-vis the dollar between those two years, Indian shippers had to pay 12 per cent (112-100) more rupees per dollar of freight rate to the liner.

29. Table 7 shows how the Singapore dollar value of $US 1 of freight rate has changed for shipments with the Far Eastern Freight Conference (Westbound). Between the end of 1978 and April 1984, this Conference reduced the currency adjustment factor from 24.0 to 6.5 per cent. Shippers in Singapore therefore paid $US 0.14 less per United States dollar of freight rate but because of the appreciation of the Singapore dollar between those two periods Singapore shippers paid 17 per cent (100-83) less per United States dollar of freight rate.

30. The rationale of the liner conferences for applying a currency surcharge is that reductions in relevant currency values result in reductions in the value of freight rates and/or increases in lines' operating costs and reduction in the value of the lines' net income. The currency surcharge is therefore needed in order to compensate the lines for the increases in their costs or to enable them to recover losses in value of their freight revenues resulting from currency devaluations. Setting the magnitude of the currency adjustment factor in a liner conference, however, is not so simple. Conferences are usually multinational in membership. These member lines are domiciled in several countries and

/Table 6

9/ For every $US 100, the shippers pay 100-83.1 = 16.9 per cent less i.e. $\frac{16.9}{100} = 0.169 \doteq \$US0.17$.

Table 6. Effect of changes in currency adjustment factor on freight rates paid in the Bay of Bengal/Japan/Bay of Bengal Conference (India Eastbound, end 1978-1983 and July 1984

	Currency adjustment factor (percentage)	$US charged per dollar freight rate (1978 = 100)	Rs paid per $US freight rate	
			Rs[a/]	Index (1978 = 100)
End 1978	27.0	100.0	10.3988	100
End 1979	12.0	88.2	8.8558	85
End 1980	24.5	98.0	9.8729	95
End 1981	12.5	88.6	10.2364	98
End 1982	4.5	82.3	10.0675	97
End 1983	9.0	85.8	11.4374	110
July 1984	5.5	83.1	11.6314	112

Source: Currency adjustment factor rates from data supplied by the Government of India. Exchange rate of Indian rupees from the International Monetary Fund, International Financial Statistics (Washington D.C.), July 1984.

a/ For 1978, the figure is derived from multiplying 8.188 (market exchange rate for the year 1978 for $US 1) by 1.27 (27 per cent currency adjustment factor surcharge) - 10.3988.

Table 7. Effect of changes in currency adjustment factor in freight rates paid in the Far Eastern Freight Conference (Westbound)

	Currency adjustment factor (percentage)	$US charged per dollar freight rate (1978 = 100)	$S paid per $US freight rate	
			$S[a/]	Index (1978 = 100)
End 1978	24.0	100.0	2.6827	100
End 1979	28.0	103.2	2.7635	103
End 1980	26.5	102.0	2.6483	99
End 1981	13.0	91.1	2.3140	86
End 1982	6.0	85.5	2.2350	83
End 1983	4.0	83.9	2.2121	82
April 1984	6.5	85.9	2.2237	83

Source: Currency adjustment factor rates from data supplied by the Government of Singapore. Exchange rates of Singapore dollars from International Monetary Fund, International Financial Statistics (Washington D.C.), July 1984.

a/ For 1978, the figure is derived from multiplying 2.1635 (market exchange rate for the year 1978 for $US 1) by 1.24 (24.0 per cent currency adjustment factor surcharge) = 2.6827.

their vessels serve ports of other countries also, carrying cargoes of varying volumes. The lines therefore incur expenses in various currencies, which fluctuate in value, while freight is paid to them in the tariff currency of the conference. The conference then has to meet the perplexing problem of devising a method of calculating a common currency adjustment factor, applicable to all member lines which operate under differing cost structures affected by national price and wage levels and currency devaluations and revaluations.

31. In view of the increased concern over the currency adjustment factor and in response to requests by the Committee on Shipping, and Transport and Communications: Shipping, Ports and Inland Waterways Wing, shippers' councils and shipowners' associations, the ESCAP secretariat convened the Working Group of Experts on Currency Adjustment Factor and Bunker Adjustment Factor (see paragraph 3 above).

32. As the study emanating from that Group showed, there are two principal systems for calculation of the currency adjustment factor. The first of these is the European or Far Eastern Freight Conference system. This is the most widely used. It is based on Recommendation No.11 of the agreement between the Council of European and Japanese National Shipowners' Associations - the members of which control over 50 per cent of the world's liner shipping - and the European Shippers' Councils. This system has two main variants (a) the Australian conferences' method, and (b) the India-Pakistan-Bangladesh/UK-Continent Conference method. Brief descriptions of these methods are outlined below, the details of which are elaborated in the proceedings of the Regional Workshop mentioned in paragraph 3 above.[10/]

33. The European system is based on a weighted average of a conference's costs in the various currencies used by its member lines. The first time a conference decides to introduce a currency adjustment factor, the composition of its total expenses in the various currencies is determined. This is repeated later only if the conference asks to change the weighting factors for the different currencies and/or the composition of the basket of currencies itself, as a consequence of a change in the composition of the expenses in the different currencies. The weighting factors for the different currencies are the percentages of these currencies in relation to the total expenses of the conference. The European formula ensures uniform calculation over time. In reality there are

/two formulas

10/ "Implications of currency fluctuations in shipping", pp. 70-74.

two formulas which lead to the same general results: the formula for calculating a common currency adjustment factor and the formula for calculating a differentiated adjustment factor. By use of a common adjustment factor, the net income of the conference as a whole is maintained but the results for the various member lines vary to a considerable extent depending on how strongly the principal currency each line uses is affected by exchange fluctuations. To arrive at a more equitable distribution of the negative effects caused by utilizing a common currency adjustment factor - both for the member lines and for the shippers - which have arisen from the uneven development of exchange rates, the factor has been differentiated. Under the differentiated method, a region (e.g. Europe) served by the conference is divided into subregions (e.g. the United Kingdom and Ireland, France, the Federal Republic of Germany, Scandinavia, and Italy) and a specific currency adjustment factor is established for each subregion. Each currency will accordingly have different weights, one for each subregion, considering that a member line servicing mostly one subregion will have a greater part of its expenses in a currency of that subregion than member lines serving the other subregions.

34. A variant of the European method is that used by Australian conferences. The Far Eastern Freight Conference started from the percentage deviation between the currency exchange rates and the base exchange rates in 1971 for each currency every time a new currency adjustment factor is determined. The Australian conferences, however, fix new base exchange rates every year so that the currency adjustment factor for each year is based on the weighting factors of the currencies which are fixed at the beginning of that year. In both the European and Australian methods the currency adjustment factor is computed once a month and is automatically enforced.

35. Another variant of the European method is that used by the India-Pakistan-Bangladesh/UK-Continent Conference. This variant is similar to the Australian method in many respects. Both conferences fix new base exchange rates every year, but they differ in the timing of the operation: the Australian conferences fix their new rates at the start of each year while the India-Pakistan-Bangladesh/UK-Continent Conference makes its readjustments each time it revises the currency adjustment factor. Thus, in the former, the base exchange rate and the weighting factors have the same reference date while this is not the case for the latter. Other things being equal, the Working Group of Experts believed that the latter method would result in lower freight costs.[11/]

/36.

11/ Ibid., p. 62.

36. The second system of calculating currency adjustment factors is the American system as reflected in the rules of the United States Federal Maritime Commission (FMC). Carriers or conferences are required to file with FMC, for acceptance or rejection, their schedules of currency adjustment factors used to govern the imposition of currency surcharges or discounts to be applied on the base rates of a particular trade. The conferences operating in the liner trade to and from the United States therefore have to comply with the rules prescribed by FMC on the imposition of currency adjustment factors. This is unlike those in the Western Europe-Asia or Australia trades, the currency adjustment factors of which are not subject to government regulation. Among the FMC rules are:

(a) Currency adjustment factor schedules are to be developed for each trade currency to apply on cargo destined to the ports of the nation using the currency concerned;

(b) A currency adjustment factor tariff provision can take effect on the first day of the month following the meeting of all appropriate statutory requirements, becoming applicable on the first market day of each succeeding month for the full month depending on relative currency values published that day in a selected media source (e.g. The Wall Street Journal);

(c) No currency adjustment factor can be imposed in any month unless the value of the trade currency concerned exceeds by 2 per cent the minimum deviation from the tariff currency base exchange rate (e.g. of the United States dollar if it is the tariff currency);

(d) The amount of a currency adjustment factor at any moment in a given trade represents 50 per cent of the magnitude of the change in the value of a trade currency in relation to the tariff currency, based on the assumption that no more than half of any currency change should affect carrier. No currency adjustment factor system should be based on 100 per cent of the currency changes;

(e) Submission of operating expense or revenue data to FMC to support currency adjustment factor schedules is not required.

The system is not concerned with trade expenses in major operating currencies, although it operates under the same theoretical concept in that the percentage of expenses in the tariff currency is determined and excluded in computations of the currency adjustment factor.

37. The currency adjustment factor has become quite a controversial issue in conference-shippers' council relations. Agitation in shippers' quarters, notably from the European, Japanese and ASEAN shippers' councils, became more pronounced

in 1981-1984 for the conferences to share with shippers the burden of currency surcharges since currency exchange fluctuations affect not only the shipping lines but also the shippers.

B. Bunker surcharge or bunker adjustment factor

38. The introduction of the bunker surcharge or bunker adjustment factor first became widespread following the 1973 oil crisis when bunker prices rose considerably in less than three months (although they fell once when the initial shortage was over). The second oil crisis in 1979 triggered another upswing in this surcharge. The subsequent reduction in world demand for oil and the development of alternative energy sources resulted in a decline in bunker prices and the bunker adjustment factor, so much so that in recent years the adjustment has become negative in some conference trades. The bunker surcharge was originally intended to be a temporary measure to compensate liner operators for increased operating costs due to the undue increases in bunker prices. However, it has now become a fact of life in conference liner shipping (most non-conference lines do not resort to it) and, like the currency adjustment factor, it constitutes an important element of ocean transport costs. In the period 1980-1984, some conferences incorporated the existing bunker surcharge into the basic freight rate but a new surcharge would be applied if bunker prices increased again.

39. Basically, there are two formulas for setting the bunker surcharge. The first and more widely used calculates a percentage change in bunker prices weighted by a bunker incidence factor. This weighted percentage change is then applied as a percentage of the basic freight rate. The second formula, used by relatively few conferences - mainly those operating in the United States trade and subject to regulation by FMC - calculates the sum of the freight tariff currency per revenue ton needed to offset at least the increase in unit bunker price. The rate of the bunker adjustment factor is then set as a fixed or flat amount per revenue ton, which is added to the sea transport cost regardless of the basic freight rate or other charges.

40. The majority of the conferences prefer the percentage method, which is less complicated to compute in practical terms than the per-freight-ton method. Besides, they consider this method as having a less distorting effect on the freight rate structure. It could be more beneficial to conferences serving trade routes involving a wide mix of high- and low-rated commodities. On routes with a fairly narrow mix of cargoes, the per-freight-ton method might tend to encourage higher freight charges of commodities. It is difficult to determine the validity of the bunker adjustment factor unless one has ready access to certain data. Under the percentage method based on cost data, it is necessary to know the movement of

/bunker

bunker fuel prices in a number of key fueling ports where conference vessels usually obtain their bunker supply. Under the per-freight-ton method, one needs to know the portion of the lines' freight revenue which is spent for bunker, the volumes acquired and at what prices. The calculation of the bunker adjustment factor is complicated by the existence of a bunker element in the lines' operating costs, which is one of the factors in determining an increase in the basic freight rate. A general rate increase requires an adjustment of the level of the bunker adjustment factor.

41. Despite generally falling prices of bunker fuel in 1982 and 1983 as compared with 1981 (see table 8), the uncertain supply of bunker fuel has made it difficult to estimate bunker prices and make a direct correlation between crude oil and bunker fuel price movements. Changes in the supply structure and the quality of bunker fuel in the bunker fuel market could be explained by the following factors:[17/]

(a) The oil shocks led refiners to seek means of increasing the proportion of their output of lighter oil products which were more in demand and returned higher profit margins;

(b) More elaborate refining techniques - especially catalytic cracking - were introduced specifically to extract as much of the higher distillates from the heavy input as possible. Residual fuel production was gradually reduced as a percentage of total refinery output and the practice of blending the various residual and non-specific distillates to produce heavy fuel oil became widespread;

(c) Greater demand for lighter products, such as LPG, naphtha and motor gasoline, and for distillates, such as jet fuel and heating oil, and the upgrading of refinery techniques to produce them, were not the only factors affecting the output of heavy residual fuels. The natural product composition of raw crude input to the refining process was also changing.

42. Bunker surcharges generally fell between 1981 and 1984 following a similar downtrend in bunker prices. In relation to the increases in basic freight rates or the total freight charges (see table 2, column 3), bunker surcharges have risen at a much faster rate. The effect of the bunker surcharges upon the total freight charges has slowed down in the period 1982-1984. In the conference trades of India, Indonesia and Pakistan during the period 1981-1984, the great majority of increases were between 10 and 26 per cent - averaging 18 per cent. However, it is interesting to note that the bunker surcharges in the liner trades of Malaysia, the Philippines and the Republic of Korea, in certain cases, have declined by around 10 to 15 per cent during 1981-1984 (see table 9).

/Table 8

12/ Lloyd's, Shipping Economist, April 1983.

Table 8. Bunker fuel spot prices

($US per tonne)

Period	Rotterdam		Genoa		Singapore		Tokyo		Los Angeles		Houston		New York	
	MDO	HVO	MDO	HVO	MDO	HVO	MDO	HVO	MDO	HVO	MDO	HVO	MDO	HVO
1980	340	174	355	184	334	-	342	184	247	130	247	131	251	145
1981	288	183	330	205	329	196	337	209	275	168	285	170	288	178
1982	281	167	320	176	304	176	328	188	261	165	279	158	277	164
1983	238	167	291	173	276	172	297	185	248	163	254	157	258	166
1983 January	272	166	324	176	301	176	330	192	269	156	273	150	276	161
February	240	157	316	175	300	174	328	193	265	158	262	147	263	154
March	230	158	308	170	296	166	327	187	260	153	262	148	258	153
April	240	167	300	169	290	167	290	177	255	156	248	152	250	158
May	240	167	302	173	285	173	287	175	252	164	255	156	265	170
June	229	165	290	172	283	171	290	174	252	162	253	154	260	165
July	231	163	278	164	275	171	278	176	245	164	250	162	255	165
August	231	173	272	168	260	172	285	182	243	171	249	164	249	173
September	239	172	282	179	260	179	295	191	240	180	254	168	270	176
October	235	170	275	176	260	179	287	196	238	176	250	167	255	176
November	235	171	272	177	250	169	282	186	228	155	244	159	246	168
December	235	171	272	177	250	169	282	186	228	155	244	159	246	168
1984 January-June	247	180	277	191	248	184	280	190	236	170	225	173	263	182
1984 January	239	171	280	184	247	168	280	183	232	165	260	168	268	176
February	234	174	287	193	246	170	275	179	252	161	258	161	262	173
March	236	189	287	199	248	190	283	191	234	174	257	178	263	185
April	273	183	273	190	250	192	283	196	232	172	156	175	262	185
May	273	183	273	190	250	192	283	196	232	172	156	175	262	185
June	227	177	262	187	248	189	277	193	233	176	262	178	258	187

Source: Lloyd's, Ship Manager, various issues.

Note: MDO is marine diesel oil and HVO is heavy fuel oil at 380 centi stroke (cst).

Table 9. The effects of bunker surcharge, currency surcharge and basic freight rate on the total freight charges of selected conferences and rate agreement, 1981-1984

(1978 = 100)

Country/conference/rate agreement/route	Basic freight rate (1)				Effect of basic freight rate + currency adjustment factor (bukder surcharge constant) (2)				Effect of bunker surcharge (freight rate + currency adjustment factor constant) (3)				Total freight charges (total movement) (4)			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984
Developed ESCAP countries																
Australia:																
Australia to Europe Shipping Conference	115	126	126	126	113	122	124	115	104	104	103	103	117	127	128	119 (January)
Australia-Eastern USA Shipping Conference	128	134	134	134	125	131	131	129	115	113	114	119	144	148	149	153 (July)
Australia Northbound Shipping Conference:																
Australia to Japan and Republic of Korea	112	117	124	124	87	90	94	94	107	108	106	106	93	97	100	100 (April)
Australia to East Asia (Hong Kong, Philippines)	114	119	125	125	104	111	117	118	112	112	110	107	117	124	129	126 (July)
Australia to East Coast India and Bangladesh	119	119	119	119	116	124	127	128	115	119	113	113	133	147	144	145 (July)
Australia/West India and Sri Lanka Outward Shipping Conferences	118	118	118	119	111	111	111	111	122	119	115	115	136	132	128	128 (July)
Australia/Singapore/West Malaysia/Indonesia Outward Shipping Conference	119	127	134	144	117	125	131	132	114	110	110	109	133	137	144	144 (May)
Australia/Thailand Outward Shipping Conference	121	126	134	143	117	135	130	131	117	113	110	109	137	153	143	143 (May)
Japan:																
Japan/Europe Freight Conference	114	114	114	128	92	83	87	97	90	89	89	89	83	74	77	86 (July)
Australia and New Zealand Eastern Shipping Conference:																
East and South	122	129	136	136	103	94	102	104	115	113	111	111	118	106	113	116 (July)
West and North	124	130	138	138	103	95	104	104	119	115	113	114	123	109	117	119 (July)
Bay of Bengal/Japan/Bay of Bengal Conference	113	113	120	120	92	83	92	92	118	117	115	115	109	97	106	106 (July)
Japan-India-Pakistan-Gulf/Japan Conference	110	124	124	124	94	93	98	97	120	117	117	117	113	109	115	114 (July)
Japan/Hong Kong and Japan/Straits Freight Agreement	120	125	129	129	102	93	102	102	119	118	116	115	121	110	118	117 (July)
Japan/Thailand Freight Conference	118	124	130	130	99	91	104	105	114	112	112	110	113	102	116	115 (July)
Japan/Philippines Freight Conference	111	116	121	121	96	88	96	92	119	116	116	113	114	102	111	104 (July)
Japan/Sabah Freight Conference	118	118	118	118	105	96	101	99	114	112	110	110	120	107	111	109 (July)
New Zealand:																
New Zealand European Shipping Association	129	138	138	138	105	124	127	130	93	94	94	94	98	117	119	122 (July)
Blueport Act: New Zealand/US Atlantic and Gulf	125	130	137	146	110	114	128	131	99	100	101	103	109	114	129	135 (July)
: New Zealand/Pacific Coast North America	123	127	134	142	108	115	116	130	100	100	101	102	108	116	117	133 (July)
New Zealand and UK Shipowners' Committee	129	138	138	138	102	123	130	129	100	101	101	102	102	124	131	132 (July)
Developing ESCAP countries																
Bangladesh:																
Chittagong and Pussur River/UK and Eire Conference	120	120	120	120	108	97	101	96	115	116	115	115	124	112	116	111 (July)
Chittagong and Pussur River/Continental Conference	120	120	120	120	91	84	83	81	111	112	111	111	101	94	92	90 (July)
Bay of Bengal/Japan/Bay of Bengal Conference: long jute, gunnies and carpet backing	100	100	106	106	90	85	91	94	126	122	123	124	114	104	112	116 (July)
Bangladesh-Australia: jute, yarn, gunnies	113	128	128	128	...	117	131	104	...	127	127	127	...	149	166	132 (July)

Table 9 (continued)

Country/conference/rate agreement/route	Basic freight rate (1)				Effect of basic freight rate + currency adjustment factor (bunker surcharge constant) (2)				Effect of bunker surcharge (freight rate + currency adjustment factor constant) (3)				Total freight charges (total movement) (4)			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984
India:																
India-Pakistan-Bangladesh/UK-Continental Conference:																
India/Continent	120	120	120	120	95	84	82	81	111	112	111	111	106	94	91	90 (June)
India/UK	120	120	120	120	108	97	101	97	119	116	115	115	128	112	116	111 (July)
Japan/India-Pakistan-Gulf/Japan Conference	100	100	100	100	92	87	85	83	129	126	125	125	119	109	106	104 (August)
Bay of Bengal/Japan/Bay of Bengal Conference (India Eastbound)	100	100	100	100	91	87	90	88	125	122	121	122	114	106	109	107 (July)
India-Pakistan-Bangladesh/Middle East Conference	100	100	100	100	104	104	104	105	111	111	111	111	115	115	115	116 (July)
Indonesia:																
Indonesia-Japan/Japan-Indonesia Freight Conference	127	135	142	142	107	99	107	111	119	115	116	114	127	114	124	127 (July)
Malaysia:																
Far Eastern Freight Conference (UK)	117	117	117	131	107	100	98	113	87	86	86	87	93	86	84	98 (April)
Straits/New Zealand Direct Conference	106	106	106	106	112	110	110	112	110	108	108	108	123	119	119	121 (June)
Straits/Calcutta/Bangladesh Conference	106	106	106	106	111	109	109	109	111	111	111	111	123	121	121	121 (May)
Straits/Bombay/Karachi/Gulf Conference	100	100	100	100	106	104	104	104	107	107	107	107	113	111	111	111 (May)
Straits/South Africa Shipping Conference	114	114	114	114	117	116	116	116	120	116	116	116	140	134	134	134 (May)
Pakistan:																
Karwahom Continental Conference	120	120	120	120	108	97	100	97	115	116	115	115	124	112	115	111 (July)
Japan/India-Pakistan-Gulf/Japan Conference: (Karachi/Hong Kong and Japan, Eastbound).	108	108	108	108	97	91	88	90	131	128	128	126	127	117	112	113 (March)
India-Pakistan-Bangladesh/UK/Continent Conference:																
Pakistan/Continent	120	120	120	120	95	84	83	81	111	112	111	111	104	94	92	90 (July)
Pakistan/UK.	120	120	120	120	108	97	101	97	115	116	115	115	124	112	116	111 (July)
India-Pakistan-Bangladesh/Middle East Conference	100	100	100	100	103	104	104	105	114	111	111	111	118	115	115	116 (July)
Philippines:																
Philippines/Europe Conference	117	117	117	131	98	95	87	93	87	85	85	86	85	81	74	80 (April)
Philippines-Asia Conference (Japan, Republic of Korea)	109	109	109	109	108	108	108	108	119	119	119	119	128	128	128	128 (March)
Republic of Korea																
Far East/Gulf of Aden and Red Sea Ports Conference	117	117	117	131	100	97	89	99	91	87	85	86	91	84	76	85 (January)
Australia and New Zealand/Eastern Shipping Conference: Republic of Korea-Australia	116	122	129	129	150	181	169	164	68	68	72	77	102	123	122	126 (June)
Republic of Korea-New Zealand	118	124	131	131	158	153	143	138	79	78	81	86	126	119	116	119 (June)
Far Eastern Freight Conference (Westbound)	117	117	117	131	100	97	90	98	92	88	86	88	92	85	77	86 (January)
Far East/East Africa Freight Conference	100	100	100	100	100	100	109	111	100	134	131	131	100	134	143	146 (March)
Far East/River Plate/Far East Freight Conference	135	135	135	135	106	106	106	106	108	108	108	108	115	115	115	115 (July)
Singapore:																
Straits/Australia Conference	126	137	147	147	131	152	150	152	106	106	105	106	139	161	158	160 (June)
Far Eastern Freight Conference	117	117	117	131	107	100	98	113	87	86	86	87	93	86	84	98 (April)
Far East/Gulf of Aden and Red Sea Ports Conference	117	117	117	131	107	100	98	113	87	86	86	87	93	86	84	98 (April)
Far East/River Plate/Far East Freight Conference	135	135	135	135	118	118	118	118	108	108	108	108	127	127	127	127 (June)
Brazil/Far East/Brazil Freight Conference	134	140	146	146	147	152	156	156	127	124	126	126	187	188	196	196 (May)
Singapore and West Malaysia/West Africa Freight Agreement	116	116	122	122	124	121	128	128	92	90	90	90	114	109	115	115 (May)
Straits/Somalia Freight Agreement	125	125	125	125	124	123	123	123	124	124	124	124	164	152	152	152 (May)
Straits/Rangoon Rate Agreement	120	120	120	120	123	120	120	120	111	111	111	111	136	133	133	133 (May)
Far East/East Africa Freight Conference	122	129	129	129	122	126	126	126	124	121	121	121	151	153	153	153 (May)

Table 9 (continued)

Country/conference/rate agreement/route	Basic freight rate (1)				Effect of basic freight rate + currency adjustment factor (bunker surcharge constant) (2)				Effect of bunker surcharge (freight rate + currency adjustment factor constant) (3)				Total freight charges (total movement) (4)			
	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984	1981	1982	1983	1984
Sri Lanka:																
Ceylon/Straits/Hong Kong/Japan Agreement	110	110	110	110	102	94	95	97	132	132	132	131	135	124	125	128 (March)
Ceylon/New Zealand (Direct) Conference	110	110	110	110	99	94	93	91	153	153	153	153	151	144	142	140 (June)
Thailand:																
Thailand/Europe Conference	108	108	108	121	90	83	79	93	88	86	86	87	79	71	68	81 (July)

Source: Computed from information supplied by member Governments.

Note: Month in parentheses indicates when the latest information received.
Data in column 2 are obtained by dividing data in column 4 by those in column 3 and multiplying by 100.

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GENERAL

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14 December 1984

ORIGINAL: ENGLISH

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

Committee on Shipping, and Transport and Communications
(Shipping, Ports and Inland Waterways Wing)

Eighth session
8-14 January 1985
Bangkok

MAJOR ISSUES IN THE FIELD OF SHIPPING, PORTS AND INLAND WATERWAYS: LATEST SHIPPING TECHNOLOGIES AND THEIR IMPACT IN THE ESCAP REGION

(Item 5 (a) of the provisional agenda)

Note by the secretariat

INTRODUCTION

1. The most prominent characteristic in the shipping of the developing member countries of the Asian and Pacific region within the last two decades has been the extensive introduction of new shipping technology. This has been applied in various ways. With the introduction of modern ships some conventional methods were modernized and others were done away with and replaced by new techniques, while outdated vessels were put out of operation. The impact of these new shipping technologies on international and domestic trade, as well as on national economies, is likely to be substantial. With the introduction of modern telecommunication systems, the methods by which trade is carried out are changing. More significance is given to information flows between economic partners. The developments in containerization and other specialized technologies and the use of specialized new vessels fit into these changing patterns and result in higher efficiency in transport.

2. At the same time, the new shipping technologies developed in industrialized nations, when being adapted for use in the major trades of developing countries, present a multitude of new problems. The introduction of new sophisticated vessels, port terminals and handling equipment requires greater levels of skills and experience, not only in system and operational management, but also in shipboard management, safe navigation and the proper upkeep and maintenance of complicated and sophisticated fleet units and port handling facilities. Shipowners possess only a limited capacity or are unable to modernize or expand their fleets to take advantage of these new technologies. Efforts to co-operate in formulating a subregional shipping network and pooling of shipping resources are often inadequate. There are insufficient repair facilities capable of adequately catering to new technology vessels or equipment. Port facilities are inadequate and there is insufficient environmental protection of sea ports. The level of co-operation among shipowners, shippers, land transport operators and other parties concerned is insufficient to achieve optimum results from the new transport systems and technologies and to simplify documentation. Finally, there is inadequate co-operation between countries.

3. All this has created an urgent demand for highly trained nautical, technical, port operational, telecommunication and computer systems personnel to solve more rapidly the various problems encountered and to facilitate taking advantage of the changes brought about by modern shipping technology for the prosperity of national economies.

/I.

I. GENERAL DEVELOPMENTS IN TRADE AND SHIPPING

4. The continued recession in the world economy finally showed signs of recovery in the developed countries at varying levels in 1983. Most developing countries, however, are still troubled by accumulated debts, price fluctuations for their export commodities and stagnating industrial development. Oil- and gas-producing countries suffered from a lack of purchasing power.

5. The total volume of international sea-borne traffic decreased, according to Fearnleys' statistics,[1/] by 8.4 per cent to 3,249 million tons in 1982 as compared with the previous year. Tanker cargoes were exposed to the most severe decline, 213 million tons, while dry cargo shipment declined by 73 million tons, predominantly in such commodities as iron ore, grain, coaking coal, bauxite and phosphate.

6. Fearnleys' estimates for 1983 show that the volume of world sea-borne trade reached some 3,165 million tons and although still down from 1982 the decrease is considerably less than anticipated and thereby indicates some recovery. Despite the continued recession this small but important improvement in world sea-borne trade gives hope for a stronger growth in years to come.

7. The developing countries in the region are major users of cargo shipping services. Their share in foreign sea-borne trade stands at approximately a quarter of global trade. They are the major producers and exporters of such primary commodities as jute, tropical timber and timber products, natural rubber and latex, coconut and related products, silk, tea, tapioca, pepper and other spices. These and other major commodities play a very important role in the economy of these countries as more than 75 per cent of their population are engaged in either the cultivation, processing, manufacture or transport of these goods. In terms of volume and of value the export of the primary commodities of these developing countries showed a better performance compared with other developing countries in the world. Their share constitutes a dominating role in world commodity exports.

/8.

1/ Review 1983 (Oslo, Fearnleys, 1984), p. 24, table 1.

8. Most developing countries of the region achieved a relatively high average growth rate for exports of between 5 and 10 per cent per annum during the last decade. The major stimulus contributing to the exports of the developing nations is the recovery of the market prices of primary products which are firming up as a result of the recovery of the world economy. The export volumes of selected commodities for 1974 and 1983 are shown in table 1.

Table 1. Volumes of export trade of major commodities in the Asian and Pacific region

(Thousand tons)

Commodity	1974	1982
Agricultural and food materials		
Cereals[a/]	4 368	8 170
Sugar	2 741	3 790[b/]
Coffee	193	359[b/]
Tea	463	535[b/]
Spices	129	190[b/]
Natural rubber	2 879	2 948[b/]
Cotton	248	418[b/]
Vegetable oil	1 654	2 202[b/]
Fruits, fresh and dried	1 221	1 442[b/]
Fish, fresh and preserved	351	610[b/]
Tobacco	199	197[b/]
Jute and allied fibres	790	418[b/]
Wool	11	11[b/]
Raw hides and skins	26	20[b/]
Mineral and forestry products		
Iron ore	21 740	23 900[b/]
Copper concentrates	1 550	1 861
Wood and lumber	27 127	23 165[b/]
Coal	414	100[b/]
Manganese ore	1 444	612[b/]

Source: Statistical Yearbook for Asia and the Pacific, 1982 (United Nations publication, Sales No. E/F.84.II.F.8), p. 12.

Notes: a/ Comprising maize, rice and products.

b/ Provisional.

9. The rapid expansion of the international sea-borne trade of the developing ESCAP countries covers more than the limited number of commodity exports mentioned in table 1. It has affected a much wider range of commodities both in import and export shipping. Over the same period, thanks to industrialization, a sizeable volume of agricultural and forestry produce is processed into semi-manufactured or to end-products. This imposes further changes upon transport facilities. As a result, trade expansion in these countries over the last two decades has been accompanied by far-reaching changes in shipping and cargo-handling techniques.

10. Most of the exports and imports of ESCAP member countries are carried by sea. Even for land-locked countries such as Afghanistan, Bhutan, Lao People's Democratic Republic, Mongolia and Nepal, many vital commodities require a sea-going stretch in their transport links.

11. China, which had only a limited number of seagoing cargo ships in the early 1960s, now operates a fleet which can carry over 70 per cent of its sea-borne trade on the general cargo shipping routes to the United States of America, Japan, South-East Asia, West Africa, Europe and Oceania. In 1982, the export trade of China totalled $US 22.4 billion and imports amounted to $US 16.1 billion, of which over 90 per cent was water-borne.

12. The expansion of India's international trade is a continuous process. The country's total trade value increased from Rs. 114.3 million in 1977/78 to Rs. 231.9 million in 1982/83 of which only 0.5 per cent is transported by rail, road and/or inland waterways. The volume of the export and import trade carried by Indian flag vessels during the last seven years was over 24.0 million tons annually.

13. Japan relies on overseas supplies for more than 90 per cent of its needs. In 1983, its 83 million tons of exports and 547 million tons of imports account for 20 per cent of the world's sea-borne cargo traffic or 25 per cent on a ton-mile basis.

14. The economy of Thailand depends almost entirely upon the export of natural raw materials, maize, rice, teak, tapioca, rubber, silk and tin and other products to be processed and manufactured by industries in the developed countries of Europe, the United States and Japan. However, in recent years Thailand has been successfully developing overseas markets for textiles, manufactured and finished agricultural products, clothes, footwear and electronic appliances. Total throughput of cargoes at Bangkok, the major port of Thailand for international trade, was 6.8 million tons in 1983 compared with 3.6 million tons in 1976.

/15.

15. The importance of sea-borne international trade for developing countries cannot be over stressed. At the same time extension of trade among the ESCAP developing countries as a means of enhancing collective self-reliance is one reaction to economic development needs, including the utilization of national resources to further mutual development. Exploiting the opportunity to increase trade between developing countries can create an agreed import substitution policy within which collective development is more effective than individual.

16. The transport intensity per capita of the ESCAP developing countries is still low and does not exceed 1.5 tons. For developed nations such as France or the Federal Republic of Germany, the equivalent figures are 4 or 5 5 tons. In general, where developing ESCAP countries are either island states, states with long coastlines or states with extensive waterway systems, new shipping technologies are going to play an important role in the transportation sector. They will affect international deep sea shipping and inter-island, coastal and inland waterway shipping. The new technologies now being mainly applied at the international level will penetrate ever deeper into domestic transport.

II. HISTORICAL DEVELOPMENT OF THE MERCHANT MARINES OF ESCAP DEVELOPING COUNTRIES

17. International trade figures may no longer be directly transformed to express the shipping capacity required to cater adequately to trade needs. The time of the almost all-purpose conventional freighter has passed. New and different transport technologies have been developed to achieve at the most efficient and cost-effective conveyance of large-volume, single commodities or of groups of commodities requiring identical handling and transport techniques. Sea transport is more and more being viewed as a link in a total transport system from producer to consumer. Many commodities are being carried in vessels which are, to a high degree, single-purpose and commodity-specific. It is typical of such vessels that they are not interchangeable between systems. This places a particular burden on the organization of shipping.

/19.

2/ The Current Situation of Japanese Shipping (Tokyo, Japan Maritime Development Association, 1984), fig. 1.

18. The shift away from the conventional, all-purpose, break-bulk vessel is not a recent development. Passenger liners and oil-tankers were amongst the first forms of specialization in seagoing transport. Dry bulk cargoes initially continued to be shipped in conventional vessels although this often required special measures and provisions to safeguard ship stability and seaworthiness. It was only much later that special vessels were designed to accommodate dry bulk cargoes. For some time these four major groups of vessels (general cargo, liquid and dry bulks, and passengers) represented the only forms of specialization.

19. Changes began in the 1950s with passenger vessels slowly fading out of the liner trade and moving into the tourist trade. Today, there are few passenger liners employed on ocean routes. This left the commercial merchant marines subdivided according to the goods they carried with the main divisions still being general cargo, liquid bulk and dry bulk. It is within these major groupings that modern technologies developed and the current situation and trends may, in broad outline, be reviewed.

20. The growth of the merchant fleets of the ESCAP countries has enabled them to capture a greater share in world totals (see table 2). Within the Asian and Pacific region this growth has been by the developing countries at the expense of the developed countries. While in gross registered tonnage the Asian and Pacific region increased its share of world capacity by 2.4 per cent during the period 1974-1982, the share of the developed countries (Australia, Japan and New Zealand) declined by 2.6 per cent and that of the developing ESCAP countries increased by 5 per cent. Comparable figures apply to deadweight capacity figures. An analysis of the growth of the average ship size shows that while during the same period the average vessel outside the region became 12 per cent bigger, the corresponding figure is 13 per cent for Asia and the Pacific. Broken down into developed and developing country groupings, there was almost stagnant growth (+ 1 per cent) for the former and a high rate of growth (+32 per cent) for the latter grouping.

21. These figures imply that within a relatively short period ESCAP seafarers had to deal with and handle larger numbers of bigger and more sophisticated vessels, requiring increased levels of competence and capabilities. Equally, this applied to those indirectly involved with shipboard management (e.g. repair, planning and spare-part management).

/Table 2.

Table 2. Growth of merchant fleets in the Asian and Pacific region

(Percentage of world totals)

Year	Number of vessels			Gross registered tonnage			Deadweight capacity		
	ESCAP	Developed	Developing	ESCAP	Developed	Developing	ESCAP	Developed	Developing
1974	24.0	17.1	6.9	17.8	12.9	4.9	17.3	12.9	4.4
1975	24.5	16.7	7.8	17.2	12.0	5.2	16.8	12.0	4.8
1976	24.0	15.6	8.4	17.5	11.5	6.0	17.2	11.6	5.6
1977	24.1	15.0	9.1	17.3	10.6	6.7	16.8	10.5	6.3
1978	24.1	14.3	9.8	17.4	10.1	7.3	16.8	10.0	6.8
1979	25.2	14.8	10.4	18.4	10.2	8.2	17.8	10.1	7.7
1980	25.8	15.1	10.7	18.7	10.2	8.5	18.1	10.1	8.0
1981	26.3	15.0	11.3	19.4	10.2	9.2	18.7	10.1	8.6
1982	26.8	15.1	11.7	20.2	10.3	9.9	19.6	10.2	9.4

Source: Based on Lloyd's Register of Shipping, statistical tables.

22. Cost considerations were instrumental in the development of new techniques which aimed at increasing the production of cargo-handling operations per unit of time in order to reduce the cost of port labour and of a ship's stay in port. Several technologies came into being, of which palletization and containerization have at present penetrated deepest into the general cargo trade.

23. The use of pallets has allowed smaller parcels within a shipment to be consolidated into bigger units resulting in more rapid handling. As units thus became unsuitable for manual handling, not only their vertical movements (in actual loading/discharging) but also the horizontal movement ashore necessitated mechanization in order to reap the benefits from this technology. It did not take long before disposable pallets came into use as a base for unitization in a door-to-door transport system. Palletization set the transport industry on the path of through-transport and intermodal systems.

24. Palletization placed specific requirements on the industry. Highly manoeuvrable rolling equipment for the lifting and transport of goods had to be acquired for use in ports, at shippers or consignees sites, and in ships' holds. Added importance had to be assigned to facilities for maintenance and to spare-part management. Palletization, however, allowed existing equipment to remain in continued use, although it required certain port infrastructural improvements. Quay aprons were widened. Surfaces were made level and often strengthened to withstand the higher point loads of the wheels of cargo-handling equipment. In terms of organization, the system presented a host of problems involving cargo-clearance procedures, effective road/rail vehicle utilization under national regulations on vehicle width, adjustments in packaging, pallet sizes and strength, labour deployment, and safety regulations, among others. Solutions were found for such problems, often on the basis of internationally agreed measures, procedures or standards.

25. The construction of vessels, specially designed to operate within the concepts of unitization, came only when the systems were already well developed and widely accepted for use in conventional carriers. Some typical features of the new type of vessels were:

(a) Replacement of cargo-derricks by shipboard cranes;

(b) Hatches abreast to allow for spotloading;

(c) Flushed hatch coamings in strengthened tween-decks for use of rolling handling equipment;

(d) Holds and tween-deck clearance heights related to dominant pallet trades;

(e) Side port loading facilities, particularly on short sea routes.

26. Outwardly these vessels very often resembled traditional break-bulk cargo vessels. The growth and further development of this fleet were almost completely halted when the full potential of containerization as a system was recognized as offering greater economies. Today, vessels carrying general cargo can be divided into two main categories, conventional break-bulk/multipurpose carriers and container vessels. Lloyd's Shipping Economist estimated the world supply of general cargo vessels to be approximately 107 million dwt capacity in mid-1984; 80 million dwt conventional capacity and 27 million dwt containerized capacity.[3/] From these figures, it would

/seem

3/ Lloyd's Shipping Economist (London), vol. 6, No. 9, (September 1984), p. 19.

seem that the break-bulk fleet predominates, yet it must be realized that the majority of the units in this fleet are below 15,000 dwt and are utilized in inter-island or coastal trades. Container vessels, because of their higher speeds, greater average load-factors, and quicker port despatch carry the majority of liner cargoes on the medium- and long-distance sea routes, and increasingly on feeder services.

27. Containerized shipping capacity is expressed either in twenty-foot equivalent unit (TEU) containers per vessel or in TEU slots per annum per service. There is no hard and fast formula for the relationship between deadweight tonnage (dwt) and TEU capacity, but based on dwt capacity figures given in Lloyd's Shipping Economist, and applying rela relationships between dwt and TEU as derived from other sources, a subdivision of the container fleet capacity as per April 1984 would approximately as follows:

Category	Million dwt	Million TEUs
Full container	15.9 (60 per cent)	1.0 (69 per cent)
Part container/barges	4.9 (18 per cent)	0.2 (10 per cent)
Ro-Ro vessels	5.8 (22 per cent)	0.3 (21 per cent)
Total	26.6	1.5

28. The world order book of liner vessels, as compiled by Lloyd's Shipping Economist at the end of first quarter of 1984 showed a continuing shift, worldwide, to containerization in liner shipping (see figure I).

/Figure I.

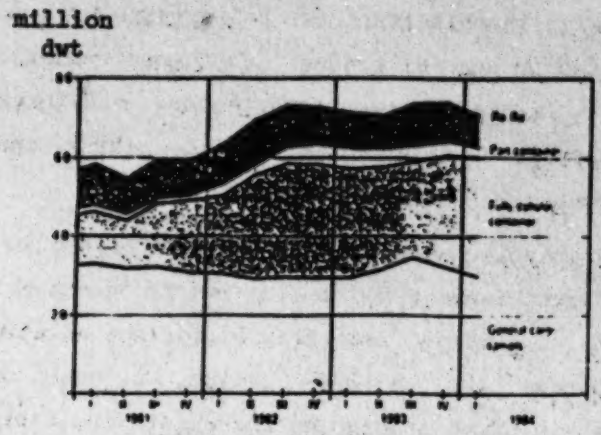

Figure I. World Orderbook of Liner Vessels (newbuildings on order at end of quarter

Source: Lloyd's Shipping Economist (London), vol. 6, No. 5 (May 1984), p. 18

29. In this context, the findings of a study entitled The Competitive Dynamics of Container Shipping are not only interesting but relevant to many situations in the Asian and Pacific region, and demonstrate the penetration of containers into conventional shipping markets.

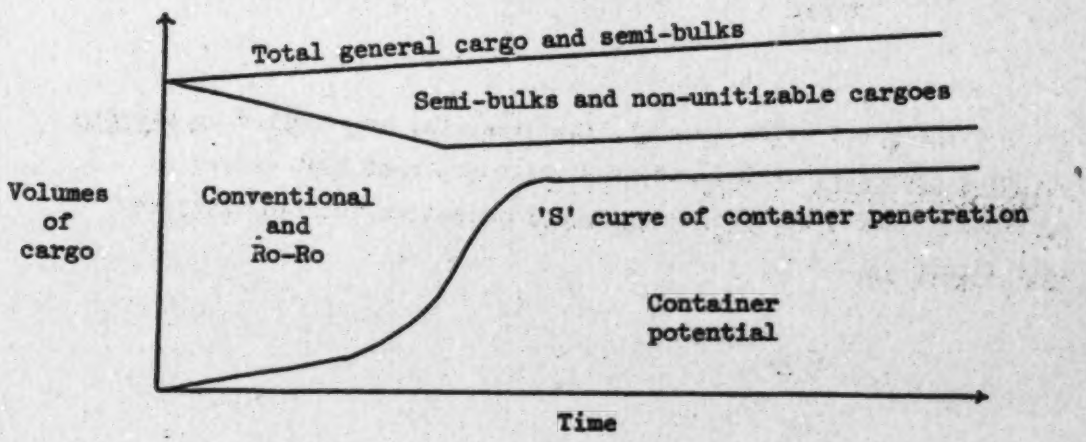

Figure II. The Restructuring of conventional markets

Source: The Competitive Dynamics of Container Shipping as cited in Touche Ross & Co., Regional Transport Survey of the South Pacific (London, 1984), p. 20.

30. In figure II, where time-scale and starting point are route-specific, it is shown that conventional systems can carry only a limited number of containers. As the penetration of containers in a particular trade increases, a point is reached where new tonnage is required. This generates a strong incentive to switch completely to a new type of vessel. Even in developing countries the container markets can grow very rapidly, as is shown by the steep slope of the "S" curve. Parallel to this container penetration is the introduction of semi-bulk vessels to move those types of general cargo not suited to container transport but available in attractive quantities. To what extent these effects can be minimized or postponed is difficult to say but it would seem that preventing their development may, in the long run, turn out to be a costly delay.

31. The need to operate specialist vessels according to trade or commodity requirements has severely taxed the financial resources of shipowners. Container vessels have a typical history in this respect. First-generation container vessels were designed with a capacity of up to 1,300-1,600 TEUs and speeds in the region of 20-22 knots, powered mostly by steam turbines for slow-speed steaming through the Suez Canal. When the Canal closed this generation of vessels, because of the greater distances to be sailed became less efficient. More efficient second-generation vessels were designed with a capacity of up to 3,000 TEU, speeds often exceeding 26 knots and general dimensions limited to the capacity of the Panama Canal locks. Events such as the oil-price hike and the reopening of the Suez Canal again caught shipowners out. Second-generation vessels also became very costly to operate. The third-generation vessels were designed in the same order of capacity but with much lower operating costs. In order to save fuel and operate at lower cost these vessels were designed for lower speeds allowing greater hull width and proportionately greater capacity, up to 3,400 TEU. While these vessels may represent ultimate economies on long-distance, high-density routes, the present preference for general worldwide employment calls for medium-sized container vessels of 1,800-2,000 TEU capacity operating at 23 knots and requiring only 35,000 brake horsepower. This is achievable with single slow-speed diesel propulsion on a single screw.

32. The average size of the deep-sea, fully-cellular vessel, is, however, of small capacity, not exceeding 1,000 TEUs. The trend is to introduce

/larger

larger and more efficient ships, but norms tend to develop in relation to ship dimensions because of a desire to standardize, particularly in port design. The cost of redeveloping ports is so high that very substantial gains would have to be made in ship operation costs, and these are at present seemingly not available.

Table 3. Container vessels (full cellular)

(Percentage of world totals)

Year	ESCAP totals		Developed ESCAP countries		Developing ESCAP countries	
	Numbers	grt	Numbers	grt	Numbers	grt
1974	14.8	18.9	11.7	17.6	3.1	1.3
1975	15.8	20.4	12.4	19.1	3.4	1.3
1976	15.6	20.0	12.4	18.6	3.2	1.4
1977	18.7	20.2	10.8	18.0	7.9	2.2
1978	19.8	21.5	10.6	16.2	9.2	5.3
1979	22.9	24.2	10.6	15.3	12.3	8.9
1980	24.8	26.5	10.9	15.1	14.1	11.4
1981	25.7	28.1	10.2	14.1	15.5	14.0
1982	25.5	27.5	10.4	14.2	15.1	13.3

33. While the average size of the fully-cellular vessel owned by the ESCAP developing countries in 1974 stood at approximately 6,000 grt, eight years later the average size had grown to almost 16,000 grt. World averages were 15,300 grt in 1974 and 18,000 grt in 1982.

34. The competitive trading efficiency of semi-container ships (designed for a mixture of container and break-bulk stow) depends on flexibility in the use of space (or the capability of handling a wide range of cargoes) and on a small size offering better access to cargo than other ship types. While viable on medium-length routes, their poor ratio of container to bale-space capacity becomes ever less competitive as container penetration increases. Eight hundred TEUs is expected to be the maximum practical capacity in this category for the foreseeable future.

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35. The developments of long-distance Ro-Ro operations was particularly enhanced by the trade boom with the members of the Organization of Petroleum Exporting Countries. The sea/road-trailer system offered a ready solution to the problems arising from the traditionally designed and heavily congested ports. Ships could secure sufficiently great savings to compensate for the higher costs arising from port congestion, and these savings eased the economics of long distance. However, the demand for Ro-Ro operations has diminished and operators of the Ro-Ro fleet have gone through difficult times, leading to very serious financial problems. Of late, the market has shown some improvement and an impressive build-up is taking place. In March 1984, a trans-Atlantic operator took delivery of the first of five G3-type vessels (36,700 dwt; 2,157 TEU) while a round-the-world service received the first "super carrier" (44,000 dwt; 2,437 TEU). In the context of poorly equipped ports, there may continue to be a preference for self-sustaining vessels. Within this group of vessels Ro-Ro's are valuable for ports with weaker, but otherwise suitable wharves. In addition, the Ro-Ro concept in ferry services is well established, but this is a relatively unexploited method of operation in the Asian and Pacific region. Long-distance Ro-Ro operations in the region seem to be limited to the USSR/Singapore/Viet Nam run, the Australia/Western ASEAN run and the China/United States run.

36. The demand for liquid bulk carriers is mainly pressed by oil consumption in regions which are unable to meet their total oil requirements. Before the oil-price hike the Middle East was the main supplier of mineral oils for shipments worldwide in ever-increasing quantities.

37. Although a specialized type of shipping, participation in liquid bulk carriage did not initially pose too many problems to developing countries, but when economies of scale pressed for larger and larger vessels, requiring, amongst other things, substantial port infrastructural adjustments, and when more detailed specialization in specific product carriage developed, the merchant marines of the developing countries moved into a disadvantaged position. This was aggravated by the fact that the world over-supply in VLCC and ULCC tonnage caused these vessels to encroach into the trades of the medium-sized tankers (40,000-150,000 dwt) which in turn impinged on the traditional routes for the small-sized tankers (10,000-40,000 dwt). It is

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in this tonnage range (and the lower brackets of the medium-sized tankers) that most of the tanker tonnage of the ESCAP developing countries is positioned. Although there was a much better balance in the supply-demand situation in these smaller categories, and the aggregate tanker surplus (at one time in the region 70 per cent of demand) was mainly attributable to VLCC and ULCC tonnage, the above-mentioned impingement caused many small-sized tanker operators to experience financial difficulties, and many such shipowners in the regior were hard hit in spite of their economically suitable tonnage.

38. A breakdown of the fleets in the Asian and Pacific region for liquid bulk trading and their share of world tonnage, as shown in table 4, makes clear the development of these fleets over a 10-year period (1974-1983).

Table 4. Breakdown of world and Asian and Pacific fleets, 1974 and 1983
(Liquid bulk carriers)

	1974				1983			
	Number	(Percentage)	grt	(Percentage)	Number	(Percentage)	grt	(Percentage)
Tankers								
World total	6 785	(100)	129 491 446	(100)	6 682	(100)	157 278 981	(100)
ESCAP total	1 903	(28.0)	18 966 933	(14.7)	2 364	(34.3)	26 122 401	(16.6)
ESCAP developing	353	(5.2)	2 699 291	(2.1)	876	(12.7)	9 280 356	(5.9)
ESCAP developed	1 550	(22.8)	16 267 642	(12.6)	1 488	(21.6)	16 842 045	(10.7)
Liquid gas carriers								
World total	399	(100)	2 414 843	(100)	750	(100)	9 079 280	(100)
ESCAP total	153	(38.4)	504 408	(20.9)	293	(39.0)	1 316 148	(14.5)
ESCAP developing	13	(3.3)	10 978	(0.5)	61	(8.1)	410,239	(4.5)
ESCAP developed	140	(35.1)	493 430	(20.4)	232	(30.9)	905 909	(10.0)
Chemical tankers								
World total	291	(100)	748 139	(100)	794	(100)	3 135 906	(100)
ESCAP total	169	(58.1)	98 099	(13.1)	382	(48.1)	423 947	(13.5)
ESCAP developing	6	(2.1)	14 781	(2.0)	41	(5.2)	144 754	(4.6)
ESCAP developed	163	(56.0)	83 318	(11.1)	341	(42.9)	279 193	(8.9)
Miscellaneous tankers								
World total	95	(100)	122 334	(100)	137	(100)	304 392	(100)
ESCAP total	29	(30.5)	30 531	(25.0)	51	(37.2)	53 379	(17.5)
ESCAP developing	1	(1.0)	1 572	(1.3)	8	(5.8)	11 717	(3.8)
ESCAP developed	28	(29.5)	28 959	(23.7)	43	(31.4)	41 662	(13.7)

Source: Based in Lloyds' statistical tables.

Note: Combination bulk ore/oil carriers are not included in above review.

39. The degree to which specialization and unit-capacity increase affected the ESCAP tanker fleets can also be illustrated through specific comparative growth figures (see table 5).

Table 5. ESCAP tanker fleets: comparative growth figures - 1983 versus 1974

Vessel type	Developing countries				Developed countries			
	Numbers (percentage)	grt (percentage)	Average unit size 1983 grt	Average unit size Percentage	Numbers (percentage)	grt (percentage)	Average unit size 1983 grt	Average unit size Percentage
Tankers:								
Oil	+ 150	+ 245	10,600	+ 40	- 5	+ 5	11,300	+ 10
Liquid gas	+ 370	+ 3635	6,700	+ 700	+ 65	+ 85	3,900	+ 10
Chemical	+ 580	+ 880	3,500	+ 45	+ 110	+ 235	800	+ 55
Miscellaneous	+ 700	+ 645	1,500	- 5	+ 50	+ 45	950	- 5

Source: Based on table 4.

40. The merchant marines of developing countries are growing at a pace which increases their share of world tanker tonnage. There is, moreover, a tendency within the Asian and Pacific region that the bigger units of these specialized tonnages are under the registry of the developing countries.

41. Drewry Shipping Consultants of London have recently estimated that in 1985 there will be a demand for deep-sea employment of LPG carriers of the order of 3.3 million m^3 and that this will reach 6.6-8.4 million m^3 by 1990. A detailed survey of the LPG trade and resulting transportation indicates that the current fleet capacity surplus will be absorbed by 1986-1988.

42. Like other sectors, the bulk-carrier sector has suffered from excessive ordering, partly perhaps due to over-optimistic expectations in respect of increased coal transport. Coal and iron ore transport volumes have always been strictly related to world steel production and this seems to be, at least at present, the principal parameter governing the health of the bulk-carrier market. Grain, the third major bulk commodity, does not provide much hope as trade is highly vulnerable to short-term price

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shifts in the commodity and has shown little stability. That the crisis in the carriage of dry-bulk cargoes would have detrimental effects to other commodity- or size-types within the group was to be expected. That dry-bulk carriers, by transporting containers on empty back-hauls, would encroach on a specialized general cargo area has been a less pleasant surprise.

43. From the information available it would seem that the shipowning community in the Asian and Pacific region has been primarily concerned with national requirements for dry-bulk shipping capacity, although a number of operators successfully participate in complex worldwide trading and tramping. The breakdown of the ESCAP fleets of dry-bulk carriers and their share in world tonnage in table 6 shows development over the 10-year period 1974-1983.

Table 6. ESCAP dry-bulk carrier fleets, 1974 and 1984

	1974				1983			
	Number	(Percentage)	grt	(Percentage)	Number	(Percentage)	grt	(Percentage)
				Combi (bulk-oil) carriers				
World total	384	(100)	22 034 582	(100)	418	(100)	26 031 554	(100)
ESCAP total	62	(16.1)	4 012 054	(18.2)	75	(17.9)	4 913 190	(18.9)
ESCAP developing	16	(4.1)	795 456	(3.6)	51	(12.2)	2 870 308	(11.0)
ESCAP developed	46	(12.0)	3 216 598	(14.6)	24	(5.7)	2 042 882	(7.9)
				Ore and dry-bulk carriers				
World total	3 111	(100)	57 403 390	(100)	4 655	(100)	98 365 123	(100)
ESCAP total	548	(17.6)	12 445 235	(21.7)	1 088	(23.3)	27 644 443	(28.1)
ESCAP developing	146	(4.7)	2 624 856	(4.6)	700	(15.0)	15 143 533	(15.4)
ESCAP developed	402	(12.9)	9 820 379	(17.1)	388	(8.3)	12 500 910	(12.7)

Source: Lloyd's statistical tables, 1974 and 1983, table 2.

44. Over that same period the average grt capacity per vessel increased as follows:

Combi-carrier:	Developing ESCAP:	to 56,280 grt + 13 per cent
	Developed ESCAP:	to 85,120 grt + 22 per cent
Ore-bulk carrier:	Developing ESCAP:	to 21,634 grt + 20 per cent
	Developed ESCAP:	to 32,219 grt + 32 per cent

45. There are other specialized shipping services, each representing a particular chain of developments to meet demands in the most efficient way. Their adoption by the ESCAP developing countries is, however, only small scale. Examples are:

(a) Refrigerated transport of perishable goods in reefer vessels. Mostly concentrated in the transport of meat or fruit (reefer or cooler cargoes), there are not yet sufficiently dense cargo flows of this type to induce their regular use. In fact, the few small capacity reefer/cooler vessels are seriously threatened in their continued employment by the much more flexible use of reefer/cooler containers;

(b) Heavy-transport vessels have only a very limited market worldwide. The expertise and marketing capabilities for this type of transport, often requiring high-technology submergeable equipment, is at present concentrated in a very few companies only;

(c) Ocean salvage and towage, when it concerns assistance to vessels in distress may be undertaken out of many ports in the Asian and Pacific region. Where it concerns commercial salvage or towage as transport it is again the domain of a few highly specialized operators who provide their services worldwide.

III. THE EFFECTS OF NEW SHIPPING AND CARGO-HANDLING TECHNOLOGIES

46. Modern shipping techniques require that ships stay in port to load and unload for as short a time as possible. This requirement has governed the port despatch of ships even under conventional sea-transport systems in the past, but with systems becoming more specialized and fine-tuned to achieve high throughput performance and with the ever-increasing capital investment required the penalties for ignoring requirements for fast turnround are becoming prohibitively expensive. This applies both to ship and port operators, and should thus cover all types of vessels and all port loading and unloading facilities.

47. A major aspect to be looked at in this context is the type of cargo to be handled. In spite of all that is said and written, conventional general cargo still plays a very important role in many ports and the role of new techniques in ports is often less than brochures and write-ups would indicate. In Paragraph 2b, reference was made to the predominance of conventional breakbulk general cargo vessels. Of relevance is the fact that the Asian and Pacific region contains the greatest number of island countries and territories, enormous archipelagic areas, and many countries with long coast lines. Clearly coastal and inter-island shipping in the region is not yet functioning as a system-bound extension of the international shipping patterns.

48. The degree to which cargoes are still being handled in conventional break-bulk fashion, particularly on intra-regional and domestic trades, is such that it continues to warrant full attention being given so as to increase efficient handling. Even with increased containerization, break-bulk shipping will not disappear in the near future. For certain trades in the region an arrangement of conventional cargo and palletized, pre-slung, pre-strapped, shrink-wrapped or other forms of unitization could already provide substantially improved throughputs without the heavy financial burdens of more sophisticated techniques. Good, modern and well-maintained multi-purpose cargo-vessels would have no difficulties with such a cargo mix, and depending on the vessel itself, a limited volume of containerized, heavy-lift, cooler/reefer, liquid bulk-cargo, or some Ro-Ro shipments could even be accommodated.

49. While recognizing the continued role conventional shipping and the early forms of unitization will continue to play, it is at the same time impossible to disregard the rapid advance of more complicated shipping techniques. Of particular importance is containerization. Containerization in the developing countries of the region was extensively reported to the Committee at its fifth session.[4/] Its impact on shipping was reported to the Committee at its sixth session.[5/]

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4/ "Containerization in the developing countries of the ESCAP region in relation to shipping, ports and inland waterways" (E/ESCAP/STC.5/32)

5/ "Impact of containerization on shipping in selected developing countries of the ESCAP region" (E/ESCAP/STC.6/7), "Impact of containerization on ports in selected developing countries of the ESCAP region" (E/ESCAP/STC.6/8), and "Impact of containerization on shippers in selected developing countries of the ESCAP region" (E/ESCAP/STC.6/9).

50. The main thrust of containerization has been in the major ports (one or a few per country) in the region and although there are noticeable and prominent exceptions, little containerized traffic went beyond the port/port city area unless through domestic shipping. Yet, in the future national second-level ports are certain to be touched by the more sophisticated and capital-intensive technologies. It is perhaps the greatest challenge to be faced in the foreseeable future. Containerization, having become firmly established on main routes and in major ports, is about to be applied to domestic shipping, inland waterways and landbased transport.

51. In spite of a global recession the use of containers has grown rapidly and many entrepreneurs in the Asian and Pacific region have moved into the container manufacturing business. Container supply for some time now has overtaken demand, and the margin is growing fast. At present, box utilization is registering an all-time low level. Even container productivity ratios have declined, falling from an average of 45 tons/container/annum in 1976 to a current level in the region of 32 tons. The container leasing sector of the industry has been particularly hard hit as shipping companies endeavour to concentrate on their own equipment. Furthermore, the intensifying competition from expanding low-cost carriers against declining traffic flows has contributed to the reduction in demand for leased containers. It has been estimated 6/ that the idle units of leasing companies now total approximately 1 million TEU. Many of these idle boxes are stacked at ports in the developing ESCAP countries and their continued availability will add pressure to the search for their use in alternative trades, e.g. the domestic trade, giving further impetus to the spread of containerization.

52. Such a spread of containerization would require massive capital investment. Where it concerns the development of ports, their approaches from the sea, and road or rail connections to the hinterland, such investment is usually arranged by the Government. Yet shipping, and for that matter road hauliers' equipment, have traditionally been financed from private sources. The inability of most indigenous private entrepreneurs to secure adequate funding compelled many developing countries to take an active role in financing the new merchant fleets, which at the same time served to give them a much improved control of certain maritime developments.

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6/ "The Container crisis", Asian Shipping, January 1983, p. 30.

Now that port and shipping industries are established and financial resources are hard to come by in the public sector, there are several indications that a growing trend of privatizing government-owned assets in the maritime sector will continue. Shipping thus will have to compete with other industries and government responsibilities for a share in development financing.

53. In examining the future need of the shipping industry to raise the capital to finance not only its expansion or its replacement programme but to replenish its working capital run down during the recent recession, it must be realized that private sector shipping, still amongst the largest single private sector industries in the world, has rarely been able to attract investment other than from the narrow ranks which make up the very ownership of the shipping structure itself. While this has allowed a few entrepreneurs to amass huge fortunes through astute timing of ordering, buying and selling of ships against an environment characterized by a remarkable coincidence of developments (world trade growth, continued inflation of capital goods, tanker capacity shortage, abundant financial resources and an expanding Eurodollar market) such a situation, although still fresh in the memories of many, is very foreign to the private shipping industry and the present and future situation is decidedly different.

54. The rules that governed the development and growth of fleets in composition, type, shape and size of ships, have fundamentally changed with the introduction of new technologies, even more so in the last five years of recession with a severe down-turn in business. Shipping, which after all is a service industry to world trade, is finding itself burdened with seriously diminished capital resources at a time when world trade may emerge from the recession vitally different from the past patterns on which the fleets were shaped, and this at a time when few governments are willing to reconsider their shipbuilding policies in order to reduce worldwide overtonnage.

55. The shipping industry has been fundamentally dependent on commercial bank lending and, given the currently depressed state of the freight market and its rate-setting machinery, it is likely to remain dependent on the banks for some time to come. Multinational financing through government banking institutions has not earned itself the reputation, among shipowners in the developing countries, of being a really cheap or attractive alternative to commercial loans. As shipowners ride out the financial storms created by the current world recession, and aggravated by the excessive ordering of

/tonnage

tonnage in the past (perhaps the single biggest miscalculation made by private enterprise in recent corporate history) it is considered opportune to highlight the problems facing the shipping industry in its constant search for capital. It is equally opportune to realize that among shipowners having to face the consequences of spreading containerization are many small-scale operators, few of them (if any) government-owned, but many with less credibility or management capabilities than their bigger colleagues from the deep-sea international trade. Yet, the role of these small-scale operators cannot be considered less important to the overall vitality of the industry.

56. One avenue open to the smaller shipowners by which to enhance their position vis-a-vis the banking institutions, and operationally in regard to trade circles, is closer co-operation among themselves. Such co-operation could cover a wide range of possibilities from membership of an association, through various forms of joint operation or pooling, to complete mergers. History has shown how the bigger shipping companies of the traditional maritime countries opted for positions along this avenue, and even cross-border positions, to remain in business with possibilities for further development safeguarded. The shipping industry of the developing countries in the Asian and Pacific region in general is still characterized by a fierce desire to retain identity and to remain loyal to the service of particular interest groups, even when a compromise on the development of the company is necessary. Yet clear signs of constructive co-operation between the bigger operators are emerging and there is no reason to assume that smaller operators, once well versed in the many options for co-operation available, may not decide to utilize existing opportunities.

57. Against the background to the conclusions and concluding remarks on the impact of containerization in the region, as mentioned in the documents presented to previous sessions of the Committee (see paragraph 49), 1/ it would seem that, as to their general context and trend, they still hold true, even though developments may have changed situations at individual national or port levels. What would be additional circumstances are:

(a) The expected spread of containerization beyond established major terminals and routes;

/(b)

1/ These conclusions have been annexed to the present document.

(b) The involvement of a level of smaller operators (shipping, ports, roadhauliers etc.) in containerization with a substantially increased manpower force also involved;

(c) The more precarious financial position of the shipping industry, severely limiting its capability for a proper response to changing trade and shipping patterns.

58. Reviewing the impact of other new shipping technologies in the region, such as bulk handling, the focus in general is less on common-user facilities and more on industry-specific techniques. Both liquid- and dry-bulk commodities are handled and shipped from facilities designed and developed, and frequently operated, by a particular industry. As a result, problems are usually not connected with the facilities as such, but are rather the result of shortcomings in the operational management of the systems in part or whole.

59. In this context it has been observed that bulk terminals (for ores, grains etc.) when operated by a port seem to be more susceptible to operational deficiencies than when under industry control. It has been noted during fact-finding missions that where economies of scale were sought by the use of very large vessels, receiving arrangements for the bulk commodity were at times so poor at unloading or feedering sites that savings were inadequate to cover excessive "in-system" time of main carriers.

60. Bulk-handling terminals also involve high capital expenditure and while this total amount per berth may vary with capacity or commodity to be handled etc. There is the continued need to keep the terminal operating at not less than its designed efficiency in the total transport chain. System design aims at having each separate activity perform at least cost per unit. For that reason the choice is, for example, to have large vessels, resulting in lowest transport cost per ton. Yet if that large vessel is kept unduly long before it is loaded or discharged (time in-system), resulting in high "in-system time cost", the terminal involved will not attract customers in a competitive market. There can be many reasons for poor turnround of vessels at a terminal, but the problem tends to become obscured when no alternative possibilities are available. This situation is very prevalent in the Asian and Pacific region where terminals often operate from a monopoly position and the share in the overall commercial accountability for the international competitive pricing of the commodity is either not well defined, not well monitored or is otherwise vague. With many countries

/insisting

insisting on the meaningful participation of their merchant fleets in national import/export carriage it is, in the first instance, the national shipping industry which is affected by terminal operational deficiencies.

IV. MANPOWER DEVELOPMENT

61. Development of manpower to deal with the advancing new technologies has received ample attention in the region. The work programme of the secretariat bears proof of the great importance which it accorded to manpower development programmes. Generally speaking, activities within these programmes have been focused on specific topics in problem areas or of particular interest. The target audience in most cases was at the higher levels of middle management or at top-management levels. In addition to training courses, seminars etc. organized by other bodies, or by the shipping and port industries themselves, it is believed that, in the overall context, a well-balanced and dynamic programme has been, and still is, available to the region. Developments in the technical and operational field, as well as in management techniques, system management, information etc. are closely watched as to their acceptance in the region, the problems encountered and assistance required.

62. Manpower development activities tend to move and progress in time. Subjects once or twice dealt with are replaced by more current topics, latest developments are closely followed. The inherent result is that the programmes also tend to accompany a rather defined generation of managers and government officials. The thrust of new technologies is focused on major ports and major routes, or on specialized handling facilities. This has contributed to the target audience being selected from amongst that limited group of people in the region who were and still are most heavily involved. This practice has served the purpose extremely well and is likely to do so satisfactorily in the future.

63. With the expected greater application of new shipping technologies in the region, and in particular the spread of containerization, and the resultant need for the widespread use of electronics and microprocessors to achieve optimum returns on capital invested, there is concern that the manpower development programmes of the secretariat as they are now, are:

(a) Insufficiently repetitive to serve the upcoming generation of young managers;

(b) Insufficient in capacity to meet the demands of a much larger and more diverse target audience;

/(c)

(c) Insufficiently oriented on local conditions and situations to serve the needs of the new target audience.

64. Should these concerns be considered valid then another additional level of manpower training may have to be developed which is less focused on the actual organization of manpower development activities, but rather concentrates on assisting selected national institutes to provide adequately for such national training needs as may be identified. Training and upgrading of instructors would carry higher priorities in such programmes than actual staff-training. This particular form of training is not new. Many training courses etc. exist and are incorporated in regularly executed programmes. Such training opportunities should be fully taken into account and only where they are considered to be insufficiently comprehensive or otherwise defective or short in output should assistance programmes be initiated.

/Annex

Annex

CONCLUSIONS AND CONCLUDING REMARKS FROM EARLIER PRESENTATIONS

A. Report on a reconnaissance study of containerization in India, Malaysia, the Philippines and Thailand, 1980 (E/ESCAP/STC.4/23)

Shipping

(1) Container shipping has arrived and is growing rapidly in the countries surveyed. It has penetrated all levels of shipping: coastal (domestic), regional (feeder and interport) and ocean routes (mainline), although the degree of penetration varies from country to country and according to trading routes. All the countries surveyed experienced, and will continue to experience, high annual growth rates in container movements. This is due in part to shipowners' optimistic outlook towards the adoption of container technology.

(2) Trans-shipment has become an important characteristic of containerization in the ESCAP region and some ports have shown high growth rates because of it. Some countries are becoming increasingly dependent on competitive feeder services to foreign trans-shipment ports with their resultant benefits for shippers in terms of freight cost and quality of shipping services.

(3) The national lines (ocean, regional and coastal) have availed themselves of the container technology and are participating in varying degrees in co-operation with international container operators.

(4) The form of liner shipping appears to be changing from loose co-operation within the conference system to intensive partnership within various consortium arrangements. The existence of competing consortia and the strong presence of outside individual operators have brought about competitive freighting in some major liner routes.

(5) The newly emerging container countries are experiencing freight rates which could be lower if institutional obstacles on the shore side were ameliorated or removed and if proper ship types were introduced.

(6) In the 1980s the ESCAP region is likely to witness increasing investment in container vessels, from the smaller carrier for domestic routes to the large sophisticated ocean vessels. Enormous amounts of capital, relative to that required for conventional vessel replacement, are necessary. This higher level of capital investment would in turn

/have

have to be matched by improvements in managerial skills, particularly in the areas of financing and choice of vessels. These are areas which could benefit from technical assistance from the more advanced maritime countries and require investigation.

Ports

(1) All countries surveyed in the present study reported faster port turn-around times of container-carrying vessels and higher throughputs of cargo even at berths where no specialized gantry cranes exist. This improvement in port capacity reflects the inherent flexibility of containerization and underlines an important principle: that containerization can effectively upgrade port capacity without recourse to expensive gantry cranes and specialized equipment. In fact, for many of the ports in the ESCAP region it is important to stress that such expensive equipment is probably unnecessary until high levels of throughput are reached.

(2) It is worth stressing too, that intermodality is not a prerequisite for the effective development of containerization in developing countries. In fact, it may be suggested that in the developing countries highest priority should be given to upgrading port efficiency rather than to the intermodal requirements of containerization.

(3) This lack of intermodality of container movements together with the characteristics of commodity flows to and from developing countries is, however, reflected in the need for much larger storage and container freight station capacities than is associated with container developments in developed countries. Unfortunately, this point seems to have escaped the notice of consultants and planners and most estimates of required storage capacity have been wrong.

(4) There are a number of other points worth emphasizing. First, that containerization presents ports with the opportunity to reformulate their pricing and tariff systems. It was apparent from the survey that ports were not aware of their container handling costs. Such costs must become the basis for effective pricing systems. Second, that container technology is creating new and different demands on labour and management. Labour redeployment schemes must be evaluated in the light of existing manning levels. Additionally, private labour is frequently used in preference to port labour, where this is allowed. This raises the issue of private investment in port operations. Third, that documentation and institutional procedures are often unduly complex and cause delay.

/(5)

(5) Given the preliminary nature of the present survey of containerization it is clear that a number of problem areas require further analysis. These might be listed as follows:

(a) The capacities required for container freight stations and their locational requirements;

(b) The quantification of improved berth productivities and the prediction of new berth capacity requirements;

(c) Existing pricing and tariff systems in the light of containerization in ports and based on cost of handling containers;

(d) Existing labour organization, pricing and redeployment schemes;

(e) Complexity of documentation requirements, Customs procedures etc.;

(f) The basis of private participation of port users in the operation and development of terminal facilities.

(6) It may also be appropriate to suggest the need for a special team (or teams) of experts, with regional experience, to undertake specific missions to ports on an ad hoc basis and at the request of member Governments.

Shippers

(1) Containerization has been viewed with some scepticism by shippers but it is apparent that they do not appear to be worse off. In fact, shippers now appear to favour the container mode of transportation. This does not alter the fact that the cost of container shipping should be investigated to ascertain the level of savings which may be possible.

(2) Containerization alters the system of charging for liner services. Competitive freighting has, in addition, eroded the traditional form and method of levying freight rates. Furthermore, from the fragmentary evidence obtained, containerization seems to have an uneven effect on different groups of shippers, depending on the stage of containerization and on the presence of competition.

(3) Shippers appear to gain from faster vessel transit time and from savings in packaging of cargoes, which saves on stowage and minimizes damage. These savings have to be offset by the extra cost shippers may have to incur to containerize cargoes. Some of these extra costs are caused by institutional constraints.

/(4)

(4) In general, the benefit of containerization has been uneven to all shippers. The large shippers and most shippers in the competitive routes have gained. Containerization has also benefited exporters of new industrial products more than those selling processed exports. Some aspects of this differential impact may have to be kept under review. Shippers as a whole need to have a sound understanding of the container system to safeguard their position.

B. Impact of containerization on shipping in selected developing countries of the ESCAP region (E/ESCAP/STC.6/7)

Obviously, one of the current problems posed to shipowners by containerization is the intense competition among carriers, which has prevailed in all the areas surveyed and in other parts of the region and the world as well. The play of market forces could lead to the elimination of the weaker lines. The carriers concerned would tend to get together and exert their utmost efforts to protect their collective interest and put the situation in order. Consideration needs to be given to various means of rationalizing shipping services in order to relieve the serious over-tonnaging and avoid its recurrence and also to realize savings and efficiency in energy utilization by ships. Joint shipping services or consortia, which are resorted to vis-a-vis containerization even by the long-established lines of developed maritime countries, may be other means which will enable the lines concerned to survive in a very tight market situation.

It hardly needs elaboration to see that the size and capacity of a nation's fleet depend not only on the conditions of the trade but also on the conditions of its home ports. In many countries, the poor conditions of the ports dissuades the national shipping operators from acquiring modern types of ship for service to those ports. It is encouraging, however, to note that the countries surveyed have plans to expand or construct new terminals. Early decision and action on the port plans would enable national lines, in turn, to attune their own plans and projects as to time and scale.

Improvements in the hardware side of infrastructure such as roads, railways and bridges could take time to effect considering the present resources available to the countries. Efforts should be exerted to expedite these improvements as they will go a long way to enabling containerization to reach the true door-to-door stage in the area. However, the software side can be taken up without delay and its improvement is no less important.

/Labour

Labour practices in some ports and customs procedures are matters which require immediate attention by those concerned as existing practices in these areas could present major obstacles to the more effective use of containerization.

C. Impact of containerization on ports in selected developing countries of the ESCAP region (E/ESCAP/STC.6/8)

The objective of this study has been to identify areas where problems can be resolved in the short and medium term. However, due to the complexity of interaction, it has been impossible to exclude comment related to the long-term situation. It is clear that a number of areas that require further analysis and attention include:

(a) The establishment of an appropriate cost structure system on which port prices might be based;

(b) Upgrading and redeployment of management and labour;

(c) Streamlining and reducing the related cost of institutional procedures to facilitate inland movement of containers;

(d) The possibility of instituting multi-modal transport documents and the establishment of multi-modal transport operations;

(e) Participation of private companies in the operation and investment in terminal facilities, particularly at inland sites;

(f) Direct of indirect (through financing institutions) financial and technical assistance from developed maritime countries having a major impact on the movement of containerized cargo from and to the developing countries of the ESCAP region.

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